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1991



U.S. Department
of Transportation
National Highway
Traffic Safety
Administration



DOT HS 807 759
Final Report

July 1991

Evaluation of the Biosid Dummy MDB-to-Car Left Side Impact Test of a 27° Crabbed Moving Deformable Barrier into a General Motors LRSV 4-Door Sedan at 38.7 MPH

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1. Report No. DOT HS 807 759		2. Government Accession No.		3. Recipient's Catalog No.																												
4. Title and Subtitle EVALUATION OF THE BIOSID DUMMY, MDB-To-Car Left Side Impact Test of a 27° Crabbed Moving Deformable Barrier into a General Motors LRSV 4-door sedan at 38.7 MPH				5. Report Date JUNE - JULY 1991																												
				6. Performing Organization Code																												
7. Author(s) J.W. Sankey, Supervisor, Laboratory Engineering, TRC				8. Performing Organization Report No. 910627																												
9. Performing Organization Name and Address Vehicle Research and Test Center 10820 State Route 347 East Liberty, Ohio 43319				10. Work Unit No. (TRAIS)																												
				11. Contract or Grant No. DTNH22-88-C-07292																												
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance (NEF-31) 400 Seventh St., S.W., Washington, DC 20590				13. Type of Report and Period Covered FINAL REPORT JUNE - JULY 1991																												
				14. Sponsoring Agency Code																												
15. Supplementary Notes																																
16. Abstract <p>This test report documents a crash test to evaluate the response of Side Impact dummies in a moving deformable barrier into stationary vehicle left side impact crash test at an impact velocity in excess of the FMVSS 214 specifications. This test was conducted on a General Motors LRSV 4-door sedan at the TRC Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbed to 27°, at 38.7 mph. The test was a simulation of a 90° intersection collision with the striking vehicle travelling 35 mph and the struck vehicle travelling at 17.5 mph. Occupant responses of two side impact dummies were measured. One Biosid dummy was located in the driver's designated seating position and one Part 572 F dummy was located in the left rear seating position. The test date was June 27, 1991, and the ambient temperature was 88° F.</p> <table border="1"> <thead> <tr> <th></th> <th>DRIVER</th> <th>PASSENGER</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC)</td> <td>210</td> <td>659</td> </tr> <tr> <td>Upper Spine Acceleration, g</td> <td>66</td> <td>44</td> </tr> <tr> <td>Left Upper Rib Acceleration, g</td> <td>78</td> <td>47</td> </tr> <tr> <td>Left Center Rib Acceleration, g</td> <td>84</td> <td>NA</td> </tr> <tr> <td>Left Lower Rib Acceleration, g</td> <td>86</td> <td>53</td> </tr> <tr> <td>Lower Spine Acceleration, g</td> <td>52</td> <td>63</td> </tr> <tr> <td>Thoracic Trauma Index (TTI(d))</td> <td>69</td> <td>58</td> </tr> <tr> <td>Pelvis Acceleration, g</td> <td>80</td> <td>86</td> </tr> </tbody> </table>							DRIVER	PASSENGER	Head Injury Criteria (HIC)	210	659	Upper Spine Acceleration, g	66	44	Left Upper Rib Acceleration, g	78	47	Left Center Rib Acceleration, g	84	NA	Left Lower Rib Acceleration, g	86	53	Lower Spine Acceleration, g	52	63	Thoracic Trauma Index (TTI(d))	69	58	Pelvis Acceleration, g	80	86
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17. Key Words BioSid Dummy Occupant Response Moving Barrier Crash Testing			18. Distribution Statement Available to the public from the National Technical Information Service, Springfield, VA 22161																													
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 176																												
22. Price																																

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SECTION 1.0

PURPOSE AND TEST SUMMARY

PURPOSE

The purpose of this test was to evaluate the response of side impact dummies in a moving deformable barrier into stationary vehicle left side impact test at an impact velocity in excess of the FMVSS 214 specifications. The vehicle was tested using conditions specified in FMVSS 214, Docket No. 88-06, Notice 8 final rule with the exception of the higher impact velocity.

INTRODUCTION

A stationary General Motors LRSV 4-door sedan was impacted on the left side by a Moving Deformable Barrier (MDB) on June 27, 1991. The test was to simulate an intersection collision with the striking vehicle travelling at 35 mph and the struck vehicle travelling at 17.5 mph. The orientation angle of the striking vehicle was 90° counterclockwise with respect to the longitudinal axis of the struck vehicle. The leading edge of contact was to be 37 inches forward of the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary General Motors LRSV at 39.1 mph with the MDB's wheels crabbed clockwise to 27°. The actual test speed was 38.7 mph and the actual leading edge of contact was 36.2 inches forward of the midpoint of the General Motors LRSV's wheelbase.

One (1) BIOSID dummy was located in the General Motors LRSV driver's designated seating position and one (1) Part 572 F dummy was located in the left rear designated seating position.

Section 2.0 contains General Test and Vehicle Parameter Data. Section 3.0 contains dummy, vehicle, and moving deformable barrier data. Appendix A contains pre-test and post-test vehicle and dummy photographs. Appendix B contains Data Plots. Appendix C contains Miscellaneous Information.

SECTION 2.0

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST RESULTS SUMMARY

This moving barrier side impact test was conducted at TRC on June 27, 1991.

The test vehicle, a General Motors LRSV 4-door sedan, was equipped with a 4 cylinder, transverse engine, and manual transmission. The vehicle's test weight was 3532 pounds. The vehicle's maximum crush was 21.1 inches.

The moving deformable barrier's speed was 38.7 mph at impact. The moving barrier's test weight was 3004 pounds.

The driver's Head Injury Criteria (HIC) was 210. The driver's Thoracic Trauma Index (TTI(d)) was 69.

The left rear passenger's HIC was 659. The left rear passenger's Thoracic Trauma Index (TTI(d)) was 58.

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: General Motors

MAKE/MODEL: LRSV

VIN: 1L69U7C183449

BODY STYLE: 4-door sedan

MODEL YEAR: NA

COLOR: Gray

ENGINE DATA: TYPE: transverse CYLINDERS: 4 DISPLACEMENT: NA

TRANSMISSION DATA: 4 SPEED, X MANUAL, ___AUTOMATIC, X FWD, ___RWD, ___4WD

DATE VEHICLE RECEIVED: 06/07/91

ODOMETER READING: 6942.0

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	No	AUTOMATIC TRANSMISSION	No
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TILTING STEERING WHEEL	No
POWER WINDOWS	Yes	TELESCOPING STEERING WHEEL	No
TINTED GLASS	No	AIR CONDITIONING	Yes
RADIO	No	ANTI-SKID BRAKE	No
CLOCK	No	REAR WINDOW DEFROSTER	No
OTHER	None		

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? No
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? No
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

CERTIFICATION DATA FROM VEHICLE'S LABEL: *

VEHICLE MANUFACTURED BY:

DATE OF MANUFACTURE:

VIN:

GVWR: LBS

GAWR: FRONT: LBS., REAR: LBS.

*The vehicle did not contain a label stating certification data.

TEST VEHICLE INFORMATION CONT'D

TIRES ON VEHICLE (MFR., LINE, SIZE): Michelin 175/14X

TIRE PRESSURE WITH MAXIMUM CAPACITY VEHICLE LOAD: FRONT: 32 PSI
REAR: 32 PSI

SPARE TIRE (MFR., LINE, SIZE): Firestone Temp T125/70D14

TYPE OF SEATS: FRONT: Split bench
REAR: Bench

TYPE OF FRONT SEAT BACKS: Non-adjustable

MAXIMUM WIDTH: 75.9 INCHES

WHEELBASE: 115.0 INCHES

LOCATION OF LABEL STATING TIRE & CAPACITY DATA: *

TIRE & CAPACITY DATA FROM VEHICLE'S LABEL: *

RECOMMENDED TIRE SIZE:

RECOMMENDED COLD TIRE PRESSURE: FRONT: PSI; REAR: PSI

DESIGNATED SEATING CAPACITY: ____FRONT ____REAR ____TOTAL

VEHICLE CAPACITY WEIGHT: _____ LBS.

TEST VEHICLE ATTITUDE (ALL MEASUREMENTS ARE IN INCHES):

DELIVERED ATTITUDE: LF 28.0; RF 29.0; LR 27.0; RR 28.2

PRE-TEST ATTITUDE: LF 28.1; RF 28.1; LR 27.2; RR 26.9

POST-TEST ATTITUDE: LF 28.5; RF 27.2; LR 25.3; RR 24.3

*The vehicle did not contain a label stating tire and capacity data.

TEST VEHICLE INFORMATION CONT'D

WEIGHT OF TEST VEHICLE AS RECEIVED (WITH MAXIMUM FLUIDS):

RIGHT FRONT	901 LBS.	RIGHT REAR	597 LBS.
LEFT FRONT	889 LBS.	LEFT REAR	678 LBS.
TOTAL FRONT WEIGHT	1790 LBS.	(58.4% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1275 LBS.	(41.6% OF TOTAL VEHICLE WEIGHT)	
TOTAL DELIVERED WEIGHT 3065 LBS.			

CALCULATION OF TEST VEHICLE'S TARGET TEST WEIGHT:

RCLW = RATED CARGO AND LUGGAGE WEIGHT*

UDW = UNLOADED DELIVERED WEIGHT (3065 LBS)

VCW = VEHICLE CAPACITY WEIGHT (NA)

DSC = DESIGNATED SEATING CAPACITY (NA)

RCLW* = 120 LBS.

TARGET TEST WEIGHT = UDW + RCLW* + (NO. OF SIDE IMPACT DUMMIES X 174 LBS/DUMMY)

TARGET TEST WEIGHT = 3065 + 120 + 348

TARGET TEST WEIGHT = 3533 LBS

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 119 LBS. OF CARGO WEIGHT:

RIGHT FRONT	949 LBS.	RIGHT REAR	788 LBS.
LEFT FRONT	1065 LBS.	LEFT REAR	730 LBS.
TOTAL FRONT WEIGHT	2014 LBS.	(57.0% OF TOTAL VEHICLE WEIGHT)	
TOTAL REAR WEIGHT	1518 LBS.	(43.0% OF TOTAL VEHICLE WEIGHT)	
TOTAL TEST WEIGHT	3532 LBS.	(1 LB. UNDER TARGET TEST WEIGHT)	

WEIGHT OF BALLAST SECURED IN VEHICLE CARGO AREA: 140 LBS.

COMPONENTS REMOVED TO MEET TARGET TEST WEIGHT: None

CG = 49.4 INCHES REARWARD OF FRONT WHEEL CENTERLINE

*Cargo weight for multi-purpose passenger vehicles, trucks, and buses is the vehicle's rated cargo and luggage weight from the vehicle's label or 300 pounds, whichever is less.

POST-IMPACT DATA

TEST NUMBER: 910627

TEST DATE: 06/27/91

TEST TIME: 1344

TEST TYPE: Left side impact

IMPACT ANGLE: 270°

AMBIENT TEMPERATURE AT IMPACT AREA:

88° F

TEMPERATURE IN OCCUPANT COMPARTMENT:

80° F

IMPACT VELOCITY: PRIMARY = 38.7 MPH

SECONDARY = 38.7 MPH

(SPECIFIED RANGE = 38.6 TO 39.6 MPH)

DISTANCE FROM BARRIER TO VEHICLE: ENTERING VELOCITY TRAP = 26.0 IN.

EXITING VELOCITY TRAP = 2.0 IN.

TEST CONDITIONS

TEST NUMBER: 910627

DATE OF TEST: 06/27/91

TIME OF TEST: 1344

WIND VELOCITY: 1-2 mph @ 180° S

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 88° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 80° F

VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
SUBJECT VEHICLE TEST WEIGHT (lbs.)	3532	3533
MDB TEST WEIGHT (lbs.)	3004	3000
MDB VELOCITY (mph)*	38.7	39.1
IMPACT POINT (in.)**:	36.2	37.0

DUMMIES

	DRIVER	MIDDLE PASSENGER	RT. FRONT PASSENGER	LEFT REAR PASSENGER	RT. REAR PASSENGER
TYPE:	BIOSID			SID	
SERIAL NO.:	002			905	
INSTRUMENTATION:					
HEAD ACCEL.:	3			3	
UPPER SPINE ACCEL.:	4			3	
UPPER RIB ACCEL.:	2			2	
CENTER RIB ACCEL.:	2				
LOWER RIB ACCEL.:	2			2	
LOWER SPINE ACCEL.:	4			4	
UPPER ABDOMEN RIB ACCEL.:	1				
LOWER ABDOMEN RIB ACCEL.:	1				
ABDOMEN DISPLACEMENT:	2				
PELVIS ACCEL.:	3			3	
RIB DISPLACEMENT:	3			1	
SHOULDER ACCELS.:	1				
SHOULDER DISPLACEMENT:	1				

RESTRAINT SYSTEM: DRIVER'S AIRBAG

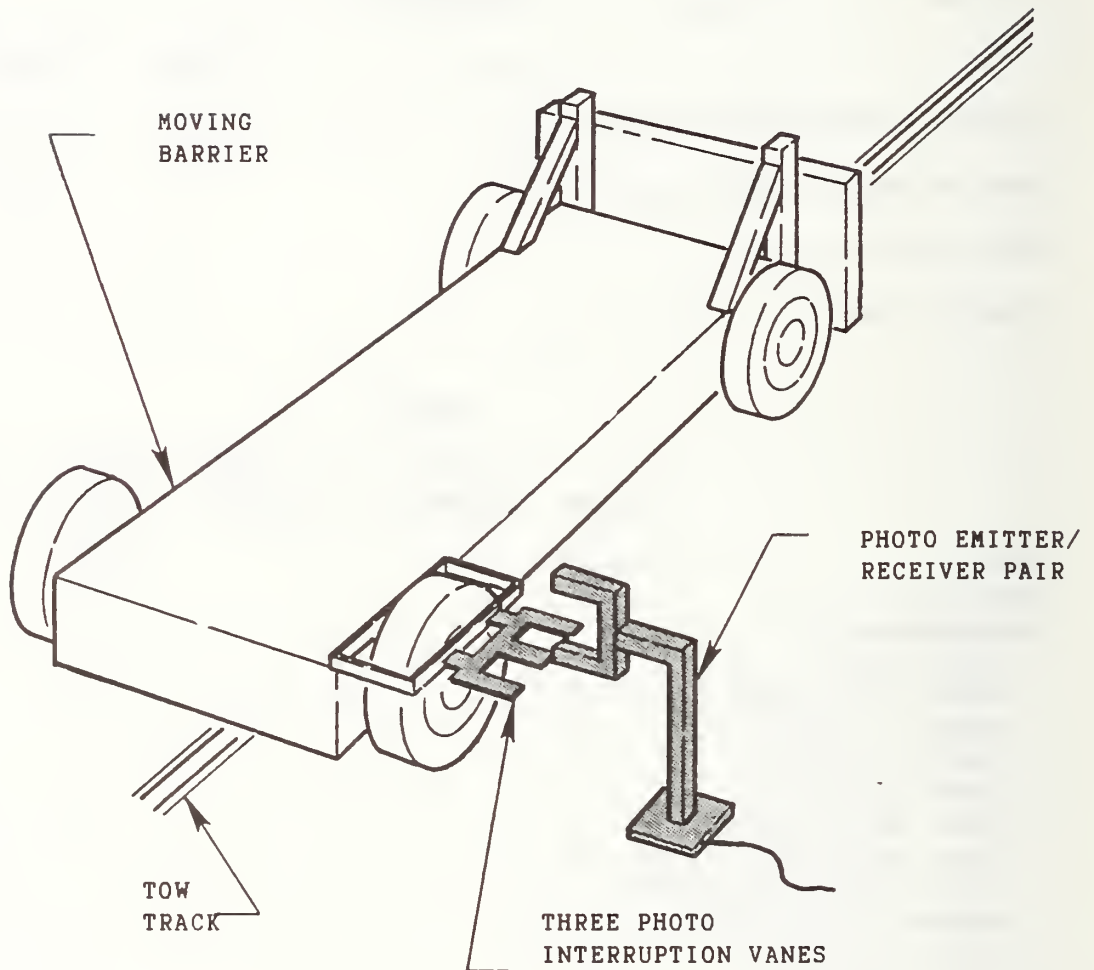
THREE-POINT
UNIBELT

REMARKS:

*AS MEASURED OVER FINAL ONE FOOT OF TRAVEL.

**AS MEASURED FORWARD OF THE SUBJECT VEHICLE'S WHEELBASE MIDPOINT.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane clears emitter/receiver two inches before impact.

The vanes have one foot spacing.

SECTION 3.0

DUMMY, VEHICLE, AND MOVING DEFORMABLE BARRIER DATA

TEST ANOMALIES

The driver's left upper abdomen rib Y-axis accelerometer, LUAYG1, data was lost after 75 milliseconds due to loss of continuity in the accelerometer. The driver's left upper abdomen rib Y-axis velocity calculation, LUAYV1, was not valid after 75 milliseconds due to the above data loss.

The driver's left lower abdomen rib Y-axis accelerometer, LLAYG1, data exceeded the full scale of the data channel at three points between 75 and 79 milliseconds. The driver's left lower rib Y-axis velocity calculation, LLAYV1, was affected by the above anomaly.

DUMMY DATA SUMMARY

TEST NUMBER 910627

DRIVER DUMMY

SN: 002

POSITIVE DIRECTION		NEGATIVE DIRECTION	
MAX	MSEC	MAX	MSEC

HEAD

LONGITUDINAL	51.2	331.3	18.3	54.9
LATERAL	25.1	35.6	9.2	162.3
VERTICAL	5.5	67.9	36.3	35.9
RESULTANT	56.1	331.4		
HIC	210 FROM 28.8 TO 63.2			

LEFT SHOULDER

LATERAL	93.7	18.1	60.7	63.8
DELTA V (MPH)	33.1	72.5		
LATERAL DISPL.	1.9	30.9	0.0	69.8

UPPER SPINE

LONGITUDINAL	16.7	40.0	9.6	26.9
LATERAL (P)	65.7	29.4	13.6	67.5
DELTA V (MPH)	26.1	52.0		
LATERAL (R)	64.5	29.4	14.6	67.5
DELTA V (MPH)	25.2	49.9		
VERTICAL	11.6	241.3	8.6	65.6
RESULTANT (P)	66.8	29.4		
RESULTANT (R)	65.6	29.4		

LEFT UPPER THORAX RIB

LATERAL (P)	78.3	23.1	22.5	58.8
DELTA V (MPH)	30.2	56.2		
LATERAL (R)	75.5	23.8	24.7	58.8
DELTA V (MPH)	32.0	56.2		
LATERAL DISPL.	1.9	35.0	0.0	2.5

LEFT CENTER THORAX RIB

LATERAL (P)	84.0	23.8	17.0	31.3
DELTA V (MPH)	34.2	79.4		
LATERAL (R)	84.4	23.8	21.3	31.3
DELTA V (MPH)	35.0	79.4		
LATERAL DISPL.	2.3	35.9	0.0	2.5

LEFT LOWER THORAX RIB

LATERAL (P)	85.5	25.6	32.4	31.9
DELTA V (MPH)	36.4	79.4		
LATERAL (R)	85.2	25.6	33.8	31.9
DELTA V (MPH)	37.0	79.4		
LATERAL DISPL.	2.3	36.4	0.0	2.5

DUMMY DATA SUMMARY CONTINUED

TEST NUMBER 910627

DRIVER DUMMY

SN: 002

POSITIVE
DIRECTION
MAX MSEC

NEGATIVE
DIRECTION
MAX MSEC

THORACIC TRAUMA INDEX

TTI (P)	68.7
TTI (R)	68.8

LOWER SPINE

LONGITUDINAL	28.4	30.0	20.1	41.9
LATERAL (P)	51.9	36.3	11.0	56.3
DELTA V (MPH)	23.4	50.8		
LATERAL (R)	52.5	35.6	13.4	56.3
DELTA V (MPH)	24.1	50.6		
VERTICAL	25.3	38.1	9.7	57.5
RESULTANT (P)	57.6	37.5		
RESULTANT (R)	58.6	31.3		

LEFT UPPER ABDOMEN

LATERAL	---	---	Y	---	---	Y
DELTA V (MPH)	---	---	Y			
LATERAL DISPL.	0.6	40.9		0.3	75.5	

LEFT LOWER ABDOMEN

LATERAL	---	---	Y	---	---	Y
DELTA V (MPH)	---	---	Y			
LATERAL DISPL.	1.4	39.0		0.0	2.5	

PELVIS

LONGITUDINAL	11.4	49.4	10.8	43.1
LATERAL	80.5	30.6	5.4	122.5
DELTA V (MPH)	34.9	99.9		
VERTICAL	9.8	238.8	6.0	39.4
RESULTANT	80.6	30.6		

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: UPWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: DOWNWARD

NOTES:

For dummy channels Delta V is the velocity change at the approximate time of separation from the contact area.

(P) Primary Sensor
(R) Redundant Sensor

Y See TEST ANOMALIES

DUMMY DATA SUMMARY

TEST NUMBER 910627

PASSENGER DUMMY

SN: 905

POSITIVE DIRECTION	NEGATIVE DIRECTION
MAX MSEC	MAX MSEC

HEAD

LONGITUDINAL	9.5	54.3	15.8	71.3
LATERAL	107.5	58.1	28.7	156.9
VERTICAL	34.7	64.1	21.2	73.8
RESULTANT	107.6	58.1		
HIC	659 FROM 51.5 TO 64.2			

UPPER SPINE

LONGITUDINAL	9.7	78.8	12.9	69.4
LATERAL	43.5	45.0	10.3	68.8
DELTA V (MPH)	23.5	66.9		
VERTICAL	7.3	28.1	11.5	42.5
RESULTANT	44.6	54.4		

LEFT UPPER THORAX RIB

LATERAL (P)	47.1	28.1	6.1	94.4
DELTA V (MPH)	24.2	75.6		
LATERAL (R)	46.8	28.1	6.1	94.4
DELTA V (MPH)	23.8	75.6		

LEFT LOWER THORAX RIB

LATERAL (P)	53.1	43.1	28.8	74.4
DELTA V (MPH)	26.0	71.0		
LATERAL (R)	53.4	43.1	27.2	74.4
DELTA V (MPH)	26.4	71.0		

THORACIC TRAUMA INDEX

TTI (P)	58.2
TTI (R)	56.6

LOWER SPINE

LONGITUDINAL	13.4	55.6	16.0	30.6
LATERAL (P)	63.3	41.2	29.6	69.4
DELTA V (MPH)	28.7	60.2		
LATERAL (R)	59.9	41.2	28.8	69.4
DELTA V (MPH)	27.4	58.6		
VERTICAL	8.5	46.3	11.6	84.4
RESULTANT (P)	63.4	41.2		
RESULTANT (R)	60.0	41.2		

DUMMY DATA SUMMARY CONTINUED

TEST NUMBER 910627

PASSENGER DUMMY

SN: 905

	POSITIVE DIRECTION		NEGATIVE DIRECTION	
	MAX	MSEC	MAX	MSEC
<hr/>				
CHEST DISPLACEMENT				
LATERAL (in)	1.9	63.8	0.0	285.1
<hr/>				
PELVIS				
LONGITUDINAL	20.6	62.5	23.7	36.9
LATERAL	86.3	38.1	19.3	64.4
DELTA V (MPH)	29.4	53.0		
VERTICAL	18.6	37.5	10.1	84.4
RESULTANT	90.7	38.1		
<hr/>				

POSITIVE DIRECTION

LONGITUDINAL: FORWARD
LATERAL: RIGHTWARD
VERTICAL: UPWARD

NEGATIVE DIRECTION

LONGITUDINAL: REARWARD
LATERAL: LEFTWARD
VERTICAL: DOWNWARD

NOTES:

For dummy channels Delta V is the velocity change at the approximate time of separation from the contact area.

(P) Primary Sensor
(R) Redundant Sensor

POST-IMPACT DUMMY/VEHICLE DATA

VISIBLE DUMMY CONTACT POINTS:

	DRIVER #002	PASSENGER #905
HEAD	<u>None</u>	<u>C-pillar and rear header</u>
CHEST	<u>Inner door panel</u>	<u>Inner door panel</u>
ABDOMEN	<u>None</u>	<u>None</u>
LEFT KNEE	<u>Inner door panel</u>	<u>Inner door panel</u>
RIGHT KNEE	<u>None</u>	<u>None</u>

DOOR OPENING:

	LEFT	RIGHT
FRONT	<u>Tools required</u>	<u>Easy</u>
REAR	<u>Tools required</u>	<u>Easy</u>

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
FRONT	<u>None</u>	<u>None</u>
REAR	<u>None</u>	<u>None</u>

GLAZING DAMAGE:

The left side door glass was shattered.

The windshield was cracked upon impact.

OTHER NOTABLE IMPACT EFFECTS:

None

DUMMY KINEMATIC SUMMARY

DRIVER DUMMY

Upon impact, the driver dummy's head rotated toward the left. The dummy's left leg and left side of its torso contacted the left front door inner panel. The dummy's upper torso rotated counterclockwise and translated toward the right into the right front passenger's seat. The dummy came to rest with its back against the right front door, lying with its feet in the driver's area.

LEFT REAR PASSENGER DUMMY

Upon impact, the left rear passenger dummy's head rotated toward the left impacting the left C-pillar and rear header. The dummy's left leg and left side of its torso contacted the left rear door inner panel as the dummy was restrained by the manual lap belt. The dummy came to rest seated in the left rear passenger's seat, leaning to the right, restrained by the lap belt.

DUMMY TEMPERATURE CONTROL AND POSITIONING

The vehicle was kept inside the temperature controlled crash test building until approximately 2 hours prior to the test. Temperatures inside the vehicle and ambient temperature at the crash area were recorded. Dummy temperature while outside the crash test building was maintained by shading the vehicle with tarps and using portable air conditioners until approximately 1 minute prior to the test.

The following Side Impact Dummy Seating Procedure summarizes the steps taken to position the instrumented, calibrated dummies in the test vehicle.

SIDE IMPACT DUMMY SEATING PROCEDURE

1. SEAT POSITIONING

- A. Place seat at the longitudinal midpoint of fore to aft adjustment (forward most locking position to rear most locking position). If no locking position is available at mid-travel, use the position immediately rearward of mid-travel.
- B. If the seat back angle is adjustable, place it in the manufacturer's stated nominal design location. If not specified, set it at the first detent rearward of 25°.
- C. Adjustable head restraints are set so that the top surface of the restraint is level with the cg of the dummy's head.
- D. If the seat is equipped with adjustable side or lumbar supports, they are set in their "released" or full back positions.
- E. All other seat adjustments are positioned to their mid-travel locations. If locking positions are not available at these mid-points, use the position immediately rearward, down, left or clockwise of mid-travel. Clockwise is defined looking rear to front or left to right relative to the vehicle. This also applies to adjustable steering columns.

2. H-POINT DETERMINATION

- A. The SAE three-dimensional H-point machine (SAE J826 APR80 - 50th percentile male configuration) is used to locate the H-point for each surrogate.
- B. The H-point machine is positioned on the seat as follows:
 - 1. Bucket or Contoured Seats - The H-point machine is centered on the bucket or contour such that its midsagittal plane is vertical and longitudinal.

2. Bench Seats

- a. Driver position. The H-point machine is positioned such that its midsagittal plane is vertical, longitudinal, and contains the steering wheel center point.
 - b. Outboard passenger positions. The H-point machine is positioned such that its midsagittal plane is vertical, longitudinal, and the same distance from the longitudinal vehicle centerline as that for the driver position.
 - c. Center passenger positions. The H-point machine is positioned such that its midsagittal plane is vertical and contains the longitudinal vehicle centerline.
- C. Locate the H-point position using the steps outlined in sections 4 through 6 of SAE Standard J826 APR80, unless otherwise specified in section 1 or 2 of this document. Record the coordinates of this point, relative to the vehicle, for use in sections 3 and 4 of this document.

3. BIOSID DUMMY POSITIONING PROCEDURE

A. DRIVER

1. The upper torso of the dummy shall rest against the seat back. The midsagittal plane of the test dummy shall be (1) vertical, (2) parallel to the vehicle's longitudinal centerline, and (3) pass through the center of the steering wheel rim (bench seat) or coinciding with the longitudinal centerline of the bucket seat (bucket seat).
2. The inner surface of the lower end of the arm shall be in contact with the upper torso jacket of the dummy. The longitudinal centerline of the arm should be parallel to the coronal plane (y-z plane of the torso).
3. The "H" point of the dummy shall be positioned within one-half (0.5) inch (12.5 mm) of the required "H" point location as determined using the SAE J826 manikin.

4. The pelvic angle should be between 21 and 25 degrees from the horizontal, sloping upward toward the front of the vehicle. Note: The BIOSID uses the same pelvic angle gage as the Hybrid III-50th.
5. The dummy's upper legs should be positioned symmetrical about the midsagittal plane with a spacing between the knees of 10.3 inches (262 mm) measured from the outboard surface of the knee castings. If practical, both legs of the dummy should be in the vertical and longitudinal planes and the knees should be level.
6. The right foot of the dummy should rest on the accelerator with the heel resting as far forward as possible on the floorpan. The left foot should be set perpendicular to the lower leg with the heel resting on the floorpan in the same lateral line as the right heel.

B. REAR PASSENGER

1. The upper torso of the dummy should rest against the seat back. The midsagittal plane of the dummy is vertical and parallel to the vehicle's longitudinal centerline, and, if possible, the same distance from the vehicle's longitudinal centerline as the midsagittal plane of the dummy in the driver position (bench seat) or coincides with the longitudinal centerline of the bucket seat (bucket seat). If this is not possible, then the dummy should be positioned so the outermost point of the skin of the upper torso just touches the innermost surface of the vehicle adjacent to the dummy.
2. The arm position shall be set in the same manner as with the driver.
3. The "H" point of the dummy shall be positioned within one-half (0.5) inch (12.5 mm) of the "H" point location as determined using the SAE J826 manikin.
4. The pelvic angle should be the same as that specified for the driver.
5. The upper legs should be set in the same manner as the driver.

6. The feet of the dummy should be placed as far forward on the floorpan as possible with the heels resting on the floorpan.

4. POSITIONING PROCEDURE FOR THE PART 572 SUBPART F TEST DUMMY

A. Position a correctly configured test dummy, conforming to subpart F of Part 572, in the front outboard seating position on the side of the test vehicle to be struck by the moving deformable barrier and position another conforming test dummy in the rear outboard position on the same side of the vehicle. Each test dummy is restrained using all available belt systems in all seating positions where such belt restraints are provided. In addition, any folding armrest is retracted.

B. TORSO

1. FOR A TEST DUMMY IN THE DRIVER POSITION

- a. For a bench seat. The upper torso of the test dummy rests against the seat back. The midsagittal plane of the test dummy is vertical and parallel to the vehicle's longitudinal centerline, and passes through the center of the steering wheel.
- b. For a bucket seat. The upper torso of the test dummy rests against the seat back. The midsagittal plane of the test dummy is vertical and parallel to the vehicle's longitudinal centerline, and coincides with the longitudinal centerline of the bucket seat.

2. FOR A TEST DUMMY IN THE FRONT OUTBOARD PASSENGER POSITION

- a. For a bench seat. The upper torso of the test dummy rests against the seat back. The midsagittal plane of the test dummy is vertical and parallel to the vehicle's longitudinal centerline, and the same distance from the vehicle's longitudinal centerline as would be the midsagittal plane of a test dummy positioned in the driver position under 4.B.1(a).

- b. For a bucket seat. The upper torso of the test dummy rests against the seat back. The midsagittal plane of the test dummy is vertical and parallel to the vehicle's longitudinal centerline, and coincides with the longitudinal centerline of the bucket seat.

3. FOR A TEST DUMMY IN EITHER OF THE REAR OUTBOARD PASSENGER POSITIONS

- a. For a bench seat. The upper torso of the test dummy rests against the seat back. The midsagittal plane of the test dummy is vertical and parallel to the vehicle's longitudinal centerline, and, if possible, the same distance from the vehicle's longitudinal centerline as the midsagittal plane of a test dummy positioned in the driver position under 4.B.1(a). If it is not possible to position the test dummy so that its midsagittal plane is parallel to the vehicle longitudinal centerline and is at this distance from the vehicle's longitudinal centerline, the test dummy is positioned so that some portion of the test dummy just touches, at or above the seat level, the side surface of the vehicle, such as the upper quarter panel, an armrest, or any interior trim (i.e., either the broad trim panel surface or a smaller, localized trim feature).
- b. For a bucket or contoured seat. The upper torso of the test dummy rests against the seat back. The midsagittal plane of the test dummy is vertical and parallel to the vehicle's longitudinal centerline, and coincides with the longitudinal centerline of the bucket or contoured seat.

C. PELVIS

1. H-POINT

The H-points of each test dummy coincide within 1/2 inch in the vertical dimension and 1/2 inch in the horizontal dimension of a point 1/4 inch below the position of the H-point determined by using the equipment for the 50th percentile and procedures specified in SAE J826 (1980), except that Table 1 of SAE J826 is not applicable. The length of the lower leg and thigh segments of the H-point machine are adjusted to 16.3 and 15.8 inches, respectively.

2. PELVIC ANGLE

As determined using the pelvic angle gauge (GM drawing 78051-532 incorporated by reference in part 572, subpart E which is inserted into the H-point gauging hole of the dummy, the angle of the plane of the surface on the lumbar-pelvic adaptor on which the lumbar spine attaches is 23 to 25 degrees from the horizontal, sloping upward toward the front of the vehicle.

D. LEGS

1. FOR A TEST DUMMY IN THE DRIVER POSITION.

The upper legs of each test dummy rest against the seat cushion to the extent permitted by placement of the feet. The left knee of the dummy is positioned such that the distance from the outer surface of the knee pivot bolt to the dummy's midsagittal plane is six inches. To the extent practicable, the left leg of the test dummy is in a vertical longitudinal plane.

2. FOR A TEST DUMMY IN THE OUTBOARD PASSENGER POSITIONS

The upper legs of each test dummy rest against the seat cushion to the extent permitted by placement of the feet. The initial distance between the outboard knee clevis flange surfaces is 11.5 inches. To the extent practicable, both legs of the test dummies in outboard passenger positions are in vertical longitudinal planes. Final adjustment to accommodate placement of feet in accordance with Section E for various passenger compartment configurations is permitted.

E. FEET

1. FOR A TEST DUMMY IN THE DRIVER POSITION

The right foot of the test dummy rests on the undepressed accelerator with the heel resting as far forward as possible on the floorpan. The left foot is set perpendicular to the lower leg with the heel resting on the floorpan in the same lateral line as the right heel.

2. FOR A TEST DUMMY IN THE FRONT OUTBOARD PASSENGER POSITION

The feet of the test dummy are placed on the vehicle's toeboard with the heels resting on the floorpan as close as possible to the intersection of the toeboard and floorpan. If the feet cannot be placed flat on the toeboard, they are set perpendicular to the lower legs and placed as far forward as possible so that the heels rest on the floorpan.

3. FOR A TEST DUMMY IN EITHER OF THE REAR OUTBOARD PASSENGER POSITIONS

The feet of the test dummy are placed flat on the floorpan and beneath the front seat as far as possible without front seat interference. If necessary, the distance between the knees can be changed in order to place the feet beneath the seat.

5. FINAL POSITIONING

- A. Prior to conducting the test, the dummy position is visually checked. The dummy is to be properly positioned laterally with its midsagittal plane vertical and longitudinal, and the upper torso resting against the seat back. The H-point and pelvis angle are to be within the specified ranges and the foot, knee, and leg placements are to be as outlined. The COTR is to be satisfied with the final dummy position and any deviations from this procedure are to be approved by the COTR.
- B. The final dummy position is recorded. These measurements are to include, but not be limited to, pelvis and head angles as well as actual H-point and head cg locations relative to the vehicle. The straight-line distance from the H-point to the center of the outer ankle bolt is also recorded for one of the legs (eg. left H-point to left angle bolt).

DUMMY IN-VEHICLE POSITION RECORDING SHEET

MFR./MAKE/MODEL: General Motors

SEAT TYPE: X Bench
 Bucket
 Split bench

ADJUSTER TYPE: X Manual
 Power
 Non-adjustable

TECHNICIANS:

BUCKET SEAT BACK TYPE: X Non-adjustable
 Adjustable reclining

1. R. Branham

2. B. Fishbaugh

POSITIONING DATE: 06/27/91

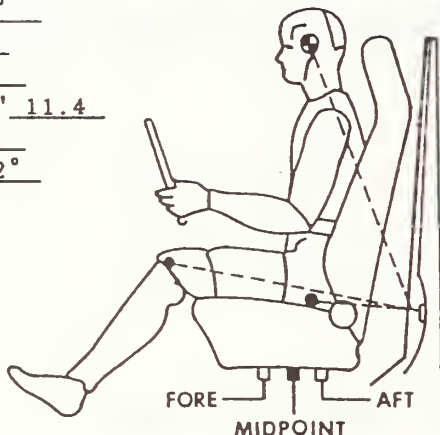
3. P. Cummins

AMBIENT TEMP.: 88° F TIME: 1344

4.

DRIVER DUMMY* # 002 TYPE: BIOSID

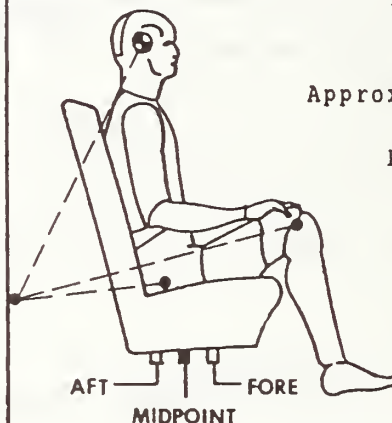
Head 21.0
 Target 3°
 Knee 24.9
 Joint 95°
 Approx. "H" 11.4
 Point 121°
 Pelvis 22°



BACK SEAT DRIVER

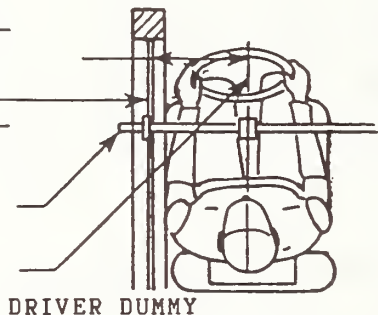
SIDE DUMMY** # 905 TYPE: 572

Head 13.9
 Target 14°
 Knee 21.9
 Joint 100°
 Approx. "H" 15.8
 Point 152°
 Pelvis 25°

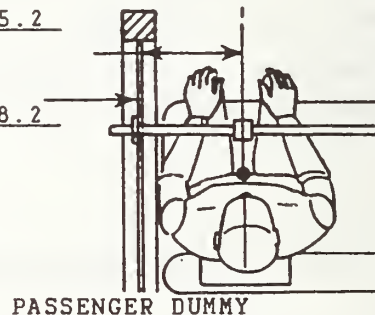


14.0
 DOOR GLASS
 HEIGHT = 9.9

LATERAL BAR
 ADJUSTABLE
 POINTER



15.2
 DOOR GLASS
 HEIGHT = 8.2



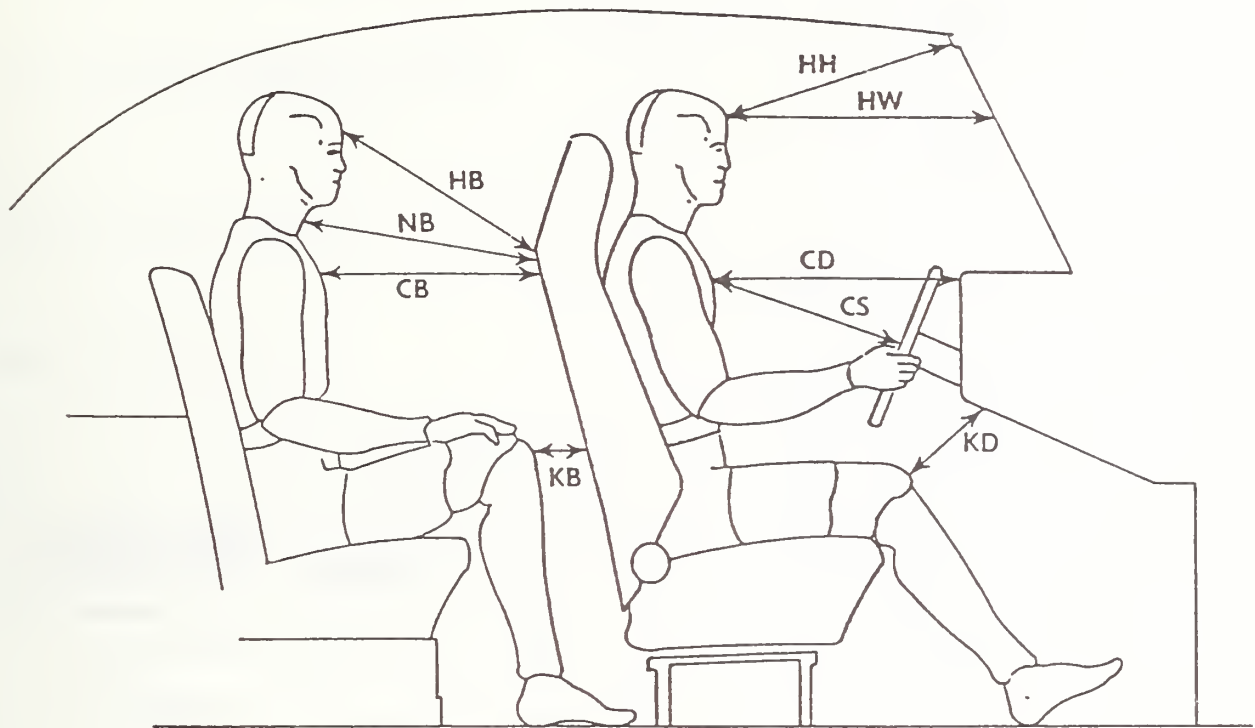
*Driver dummy measurements are referenced to top of striker bolt and all angles referenced to vertical.

**Passenger dummy measurements are referenced to top of rear door striker bolt and all angles are referenced to vertical.

NOTE: Driver dummy moved inboard 1" to allow door to latch without door padding contacting the dummy's arm.

ALL DISTANCE MEASUREMENTS ARE IN INCHES.

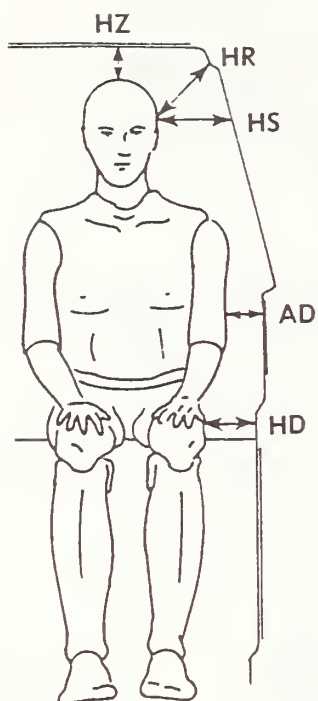
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS



	DRIVER	REAR DRIVER'S SIDE PASSENGER
HH	14.3	NA
HW	18.1	NA
CD	19.7	NA
CS	11.6	NA
KDL	1.8	NA
KDR	1.9	NA
HB	NA	28.4
NB	NA	26.4
CB	NA	22.0
KBL	NA	7.2
KBR	NA	8.7

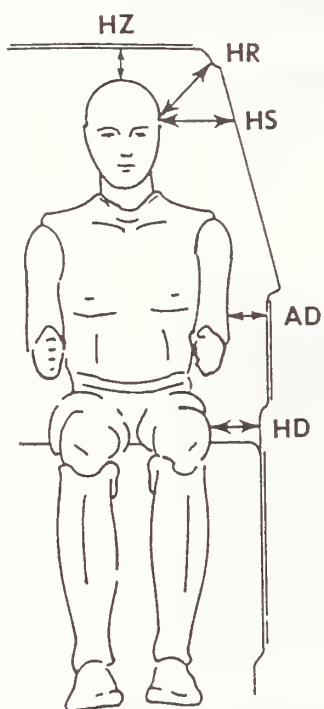
ALL MEASUREMENTS ARE IN INCHES.

DUMMY LATERAL CLEARANCE DIMENSIONS



	DRIVER	REAR DRIVER'S SIDE PASSENGER
HR	7.3	7.1
HS	11.3	10.1
AD	0.8	1.2
HD	3.8	3.6
HZ	4.0	3.1

ALL DISTANCE MEASUREMENTS ARE IN INCHES.



SAE 3D H-POINT MACHINE LOCATION AND DUMMY LOCATION DATA

	DRIVER #002	PASSENGER #905
SAE 3D H-POINT MACHINE LOCATION:	X = 7.0 Z = -0.8	X = 5.0 Z = -5.1
DUMMY H-POINT LOCATION:	X = 7.3 Z = -0.5	X = 5.0 Z = -5.5
DUMMY PELVIC ANGLE:	22°	25°

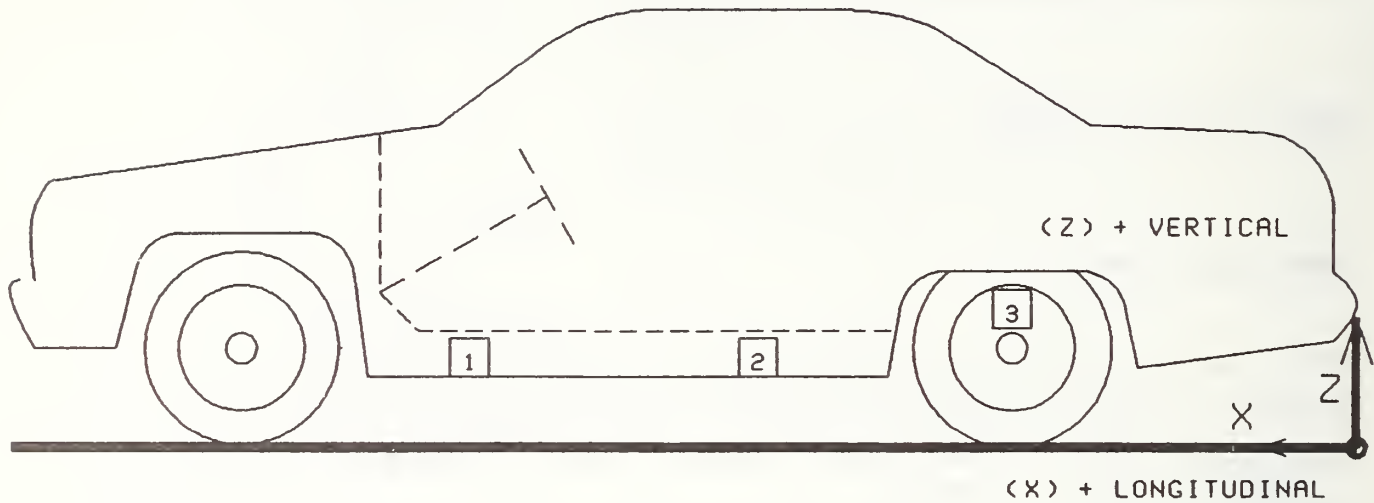
The driver's H-point location measurements are referenced to the left door striker bolt and the passenger's H-point location measurements are referenced to the left rear door striker bolt in two-dimensional rectangular coordinates:

- +X = Forward
- +Z = Upward

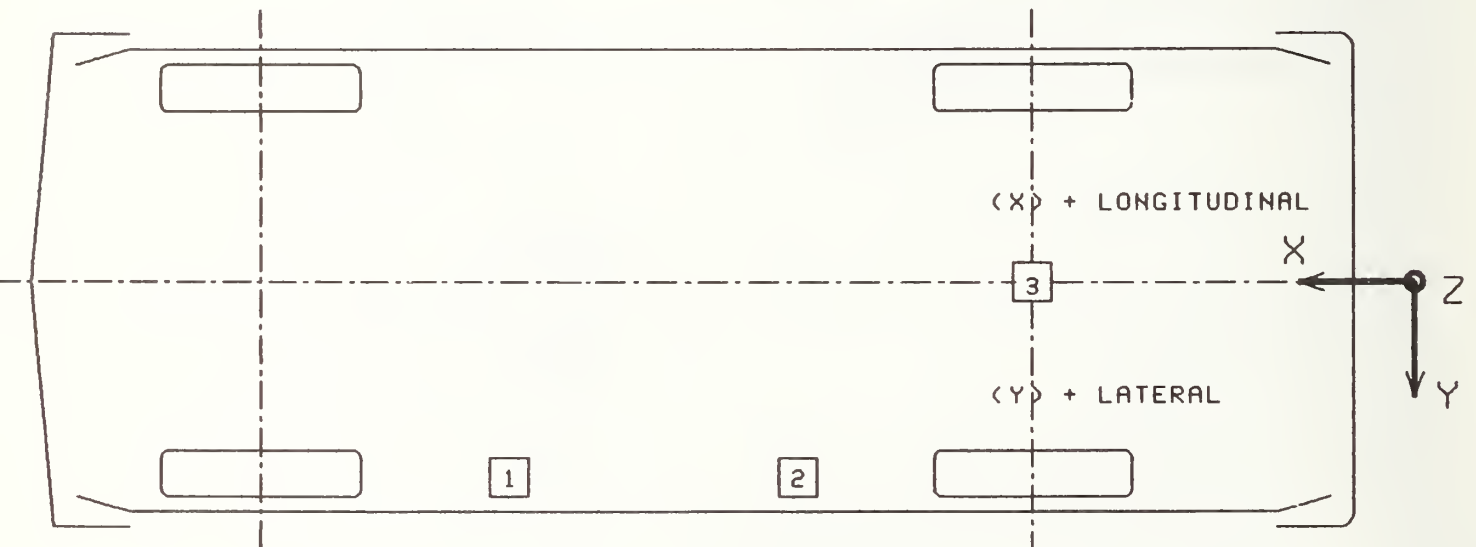
All dimensions are in inches except as noted.

Pelvis angles are referenced to horizontal, positive is upward toward the front of the vehicle.

VEHICLE ACCELEROMETER PLACEMENT



SIDE VIEW



BOTTOM VIEW

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 910627

No.	LOCATION	X*	Y*	Z*	POSITIVE		NEGATIVE	
					DIRECTION		DIRECTION	
					MAX G	MSEC	MAX G	MSEC
1	RIGHT SILL AT	126.6	26.7	9.3				
	FRONT SEAT							
	LONGITUDINAL				4.6	64.4	4.5	23.5
	LATERAL				20.6	37.5	15.5	20.5
	VERTICAL				8.6	14.4	4.0	44.5
	RESULTANT				22.0	14.3		
	Delta VY is 9.3 MPH @ 67.5 MSEC							
2	RIGHT SILL AT	96.6	27.1	10.6				
	REAR SEAT							
	LONGITUDINAL				3.8	38.8	5.4	14.6
	LATERAL				20.8	24.5	2.5	182.4
	VERTICAL				6.6	28.1	4.8	44.1
	RESULTANT				21.2	24.6		
	Delta VY is 15.7 MPH @ 91.9 MSEC							
3	REAR DECK OVER AXLE	53.5	-2.1	8.9				
	LONGITUDINAL				3.6	36.5	5.6	30.3
	LATERAL				18.9	27.6	3.0	338.6
	VERTICAL				10.1	18.0	14.0	24.8
	RESULTANT				21.0	25.8		
	Delta VY is 20.4 MPH @ 124.5 MSEC							

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM REAR BUMPER
Y: + RIGHTWARD FROM VEHICLE CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

All measurements of accelerometer locations are in inches.

VEHICLE EXTERIOR PROFILES AND STATIC CRUSH

ZERO DISTANCE AT PROJECTED IMPACT POINT*

TOP WIDTH: 53.5; WHEELBASE: 115.0

WIDTH: 75.9; TRACK: 64.8; LENGTH: 214.2; OVERHANG: FRONT: 46.1; REAR: 53.0

LOCATION HEIGHT(IN) -6 0 6 12 18 24 30 36 42 48 54 60 66 72 78

PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)

Axle Height	11.9	X	14.2	13.8	14.1	14.2	14.1	14.1	14.1	14.1	13.8	14.1	14.1	14.1	X
H-point	18.5	X	11.0	11.1	10.8	11.0	10.9	11.0	10.9	10.8	10.8	11.2	11.1	11.1	11.1
Mid Door	23.2	11.3	10.6	10.4	10.1	10.2	10.2	10.1	10.4	10.1	10.1	10.2	10.4	10.2	10.2
Window Sill	36.5	13.2	12.9	12.6	12.5	12.4	12.2	12.5	12.7	12.7	12.4	13.1	13.2	13.1	12.9
Window Top	53.5	X	X	X	X	X	X	21.8	22.3	22.3	21.8	22.4	22.4	22.1	21.5

POST-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)

Axle Height	11.9	X	18.0	23.9	24.6	25.6	26.0	26.7	27.0	27.4	29.0	28.2	28.9	28.8	29.8	X
H-point	18.5	X	16.1	23.4	26.4	28.2	28.6	29.4	30.2	31.1	31.7	31.2	32.1	32.2	29.5	25.6
Mid Door	23.2	15.0	15.2	22.1	24.5	25.6	26.4	27.3	28.2	29.0	29.9	30.8	30.8	30.4	29.5	23.0
Window Sill	36.5	16.1	16.5	16.3	20.6	23.1	24.0	25.0	26.0	27.2	28.2	30.6	30.4	30.4	26.8	21.2
Window Top	53.5	X	X	X	X	X	X	25.8	26.5	27.1	27.9	28.8	27.6	26.5	25.7	24.8

STATIC CRUSH (IN)

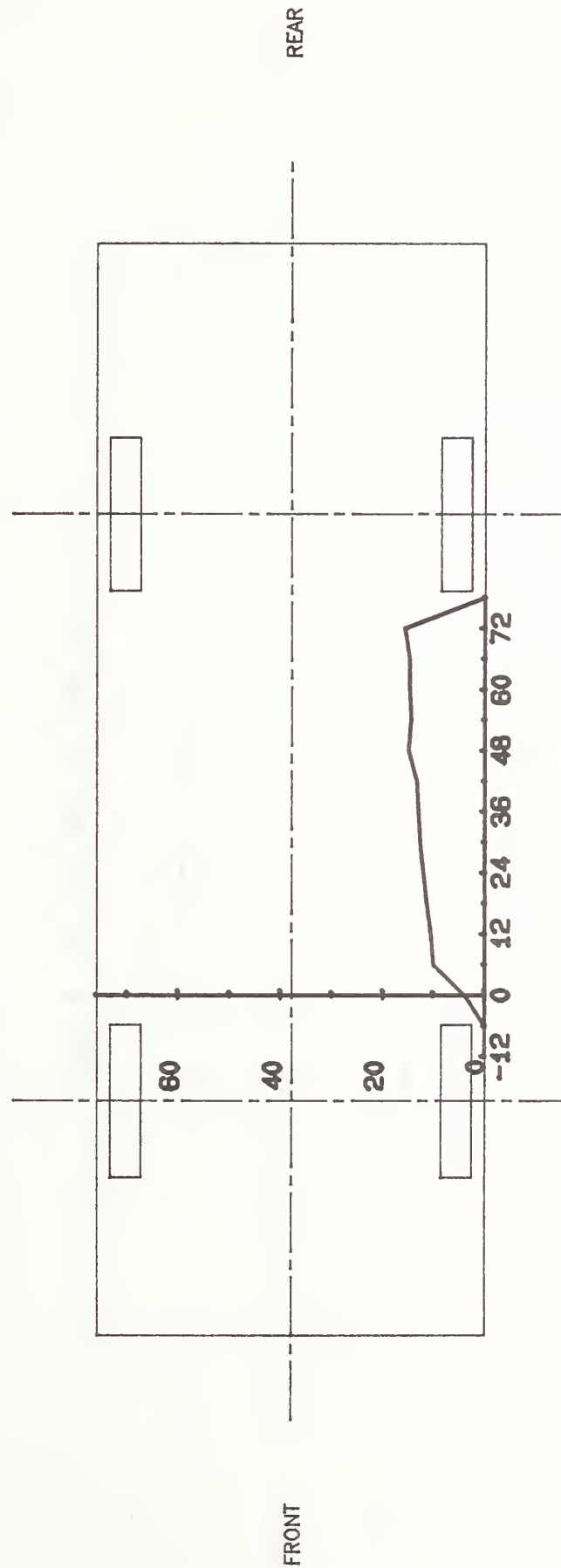
Axle Height	11.9	X	3.8	10.1	10.5	11.4	11.9	12.6	12.9	13.3	14.9	14.4	14.8	14.7	15.7	X
H-point	18.5	X	5.1	12.3	15.6	17.2	17.7	18.4	19.3	20.3	20.9	20.4	20.9	21.1	18.4	14.5
Mid Door	23.2	3.7	4.6	11.7	14.4	15.4	16.2	17.2	17.8	18.9	19.8	20.6	20.4	20.2	19.3	12.8
Window Sill	36.5	2.9	3.6	3.7	8.1	10.7	11.8	12.5	13.3	14.5	15.8	17.5	17.2	17.3	13.9	8.3
Window Top	53.5	X	X	X	X	X	X	4.0	4.2	4.8	6.1	6.4	5.2	4.4	4.1	3.3

*Projected impact point is 37 inches forward of driver's side wheelbase midpoint.

Column readings are front to rear from left to right.

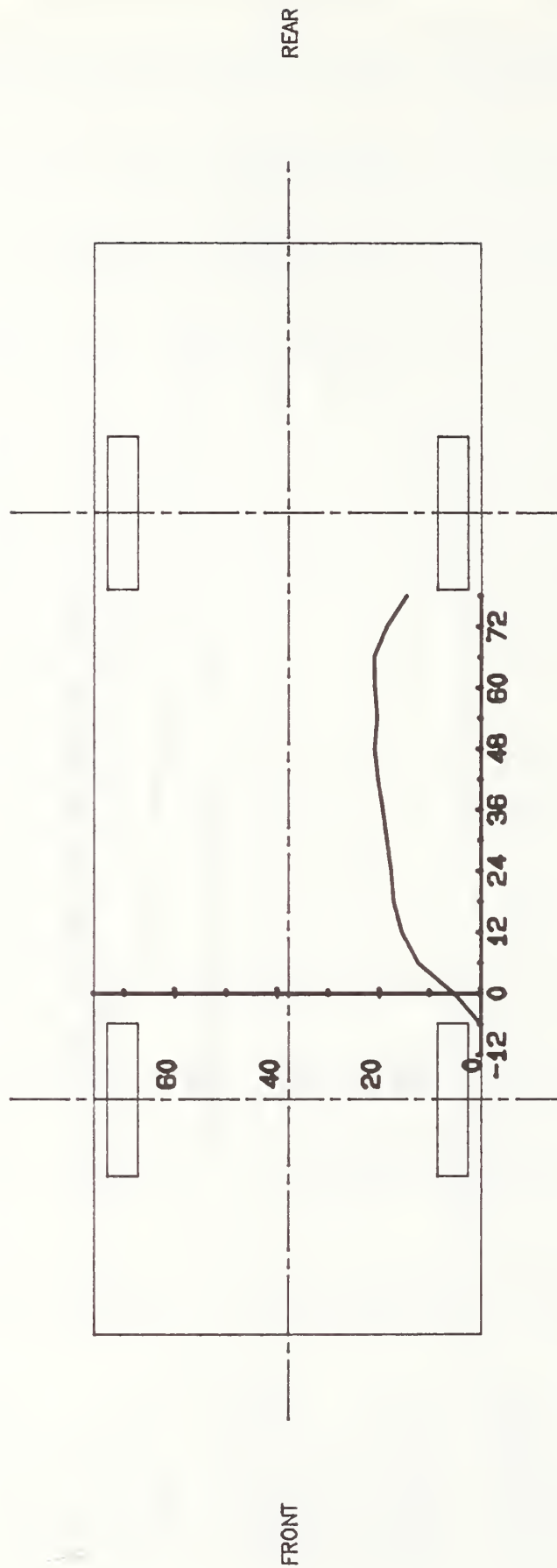
**Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

VEHICLE EXTERIOR STATIC CRUSH PROFILE



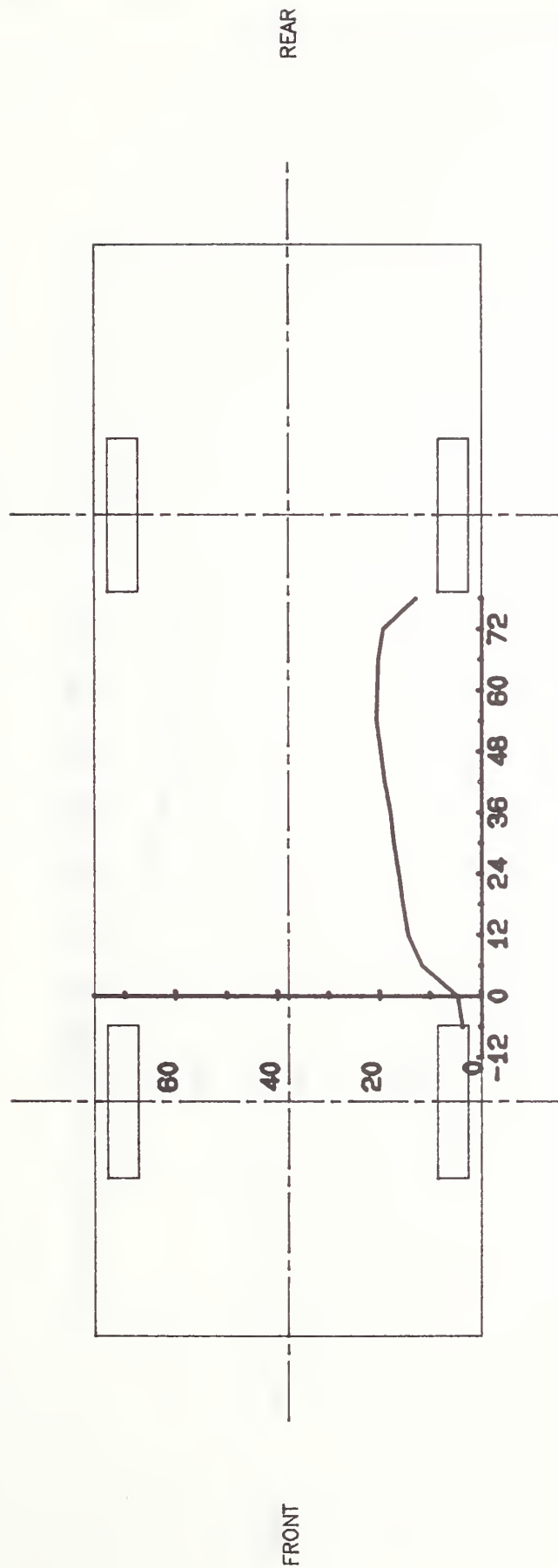
PROFILE LEVEL EQUALS AXLE HEIGHT WHICH IS 11.9" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.030

VEHICLE EXTERIOR STATIC CRUSH PROFILE



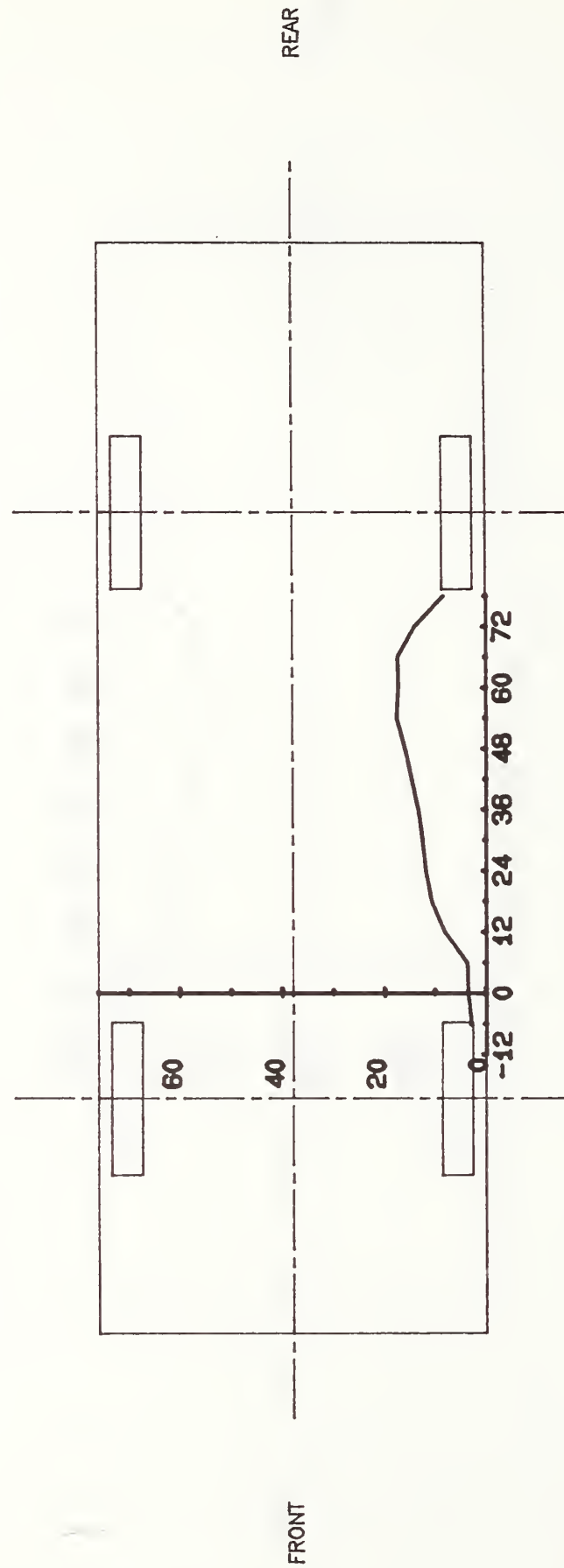
PROFILE LEVEL EQUALS H-POINT HEIGHT WHICH IS 18.5" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.030

VEHICLE EXTERIOR STATIC CRUSH PROFILE



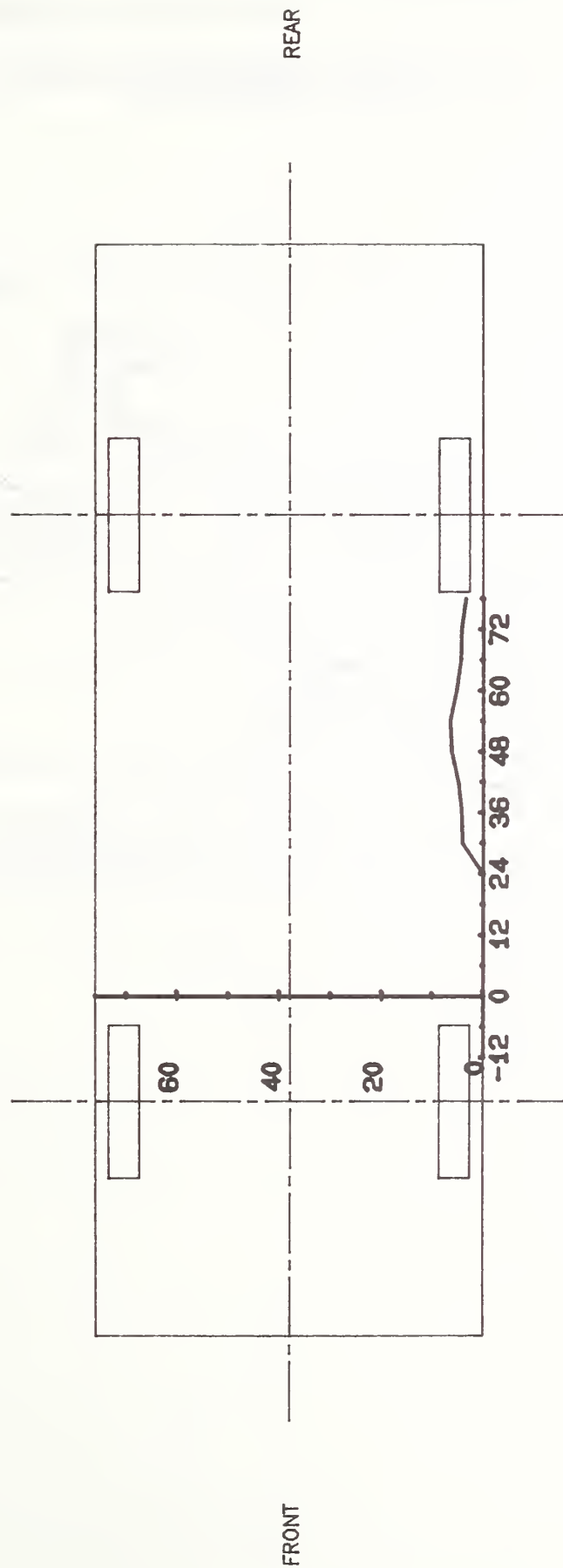
PROFILE LEVEL EQUALS MID DOOR HEIGHT WHICH IS 23.2 " ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.030

VEHICLE EXTERIOR STATIC CRUSH PROFILE



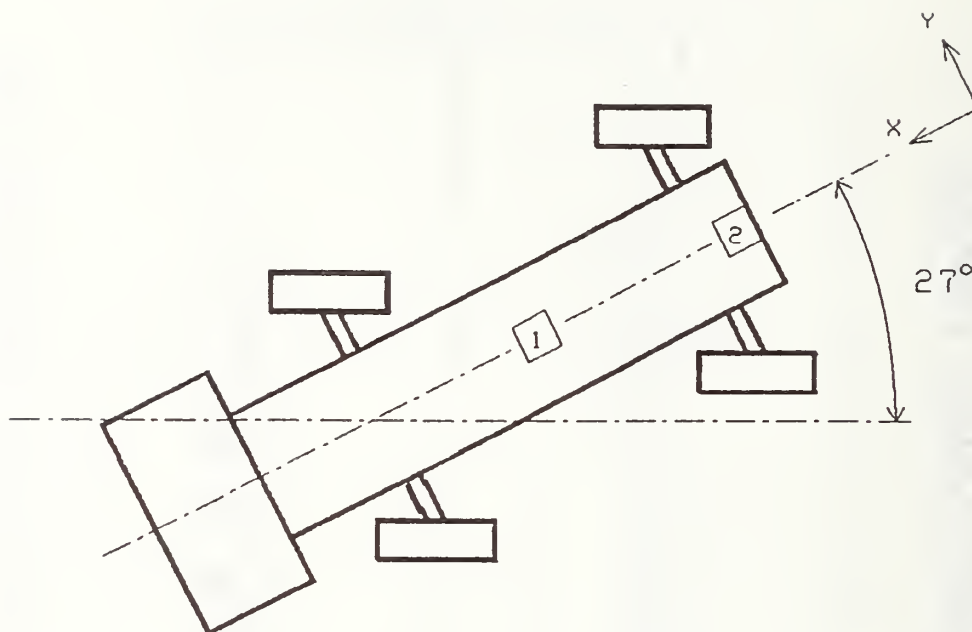
PROFILE LEVEL EQUALS WINDOW SILL HEIGHT WHICH IS 36.5" ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.030

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT WHICH IS 53.5 " ABOVE GROUND LEVEL
 (0,0) EQUALS PROJECTED IMPACT POINT
 SCALE FACTOR EQUALS 0.030

MOVING BARRIER ACCELEROMETER PLACEMENT



MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY

TEST NUMBER 910627

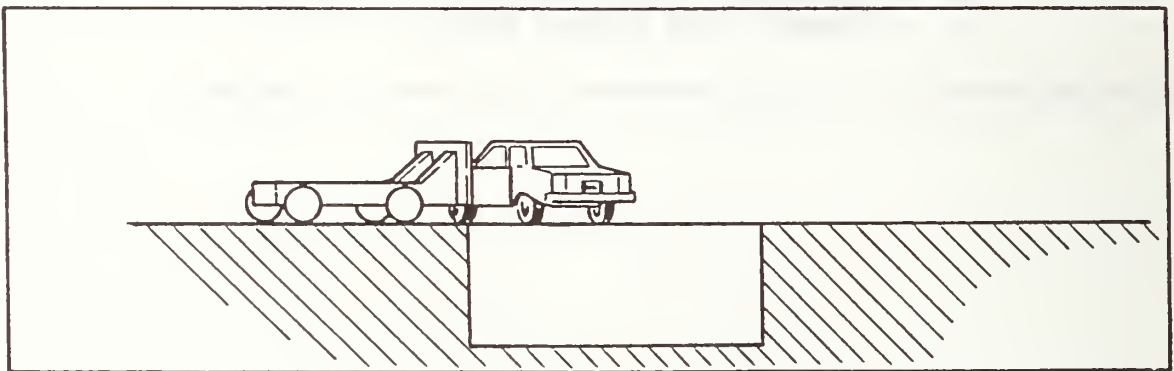
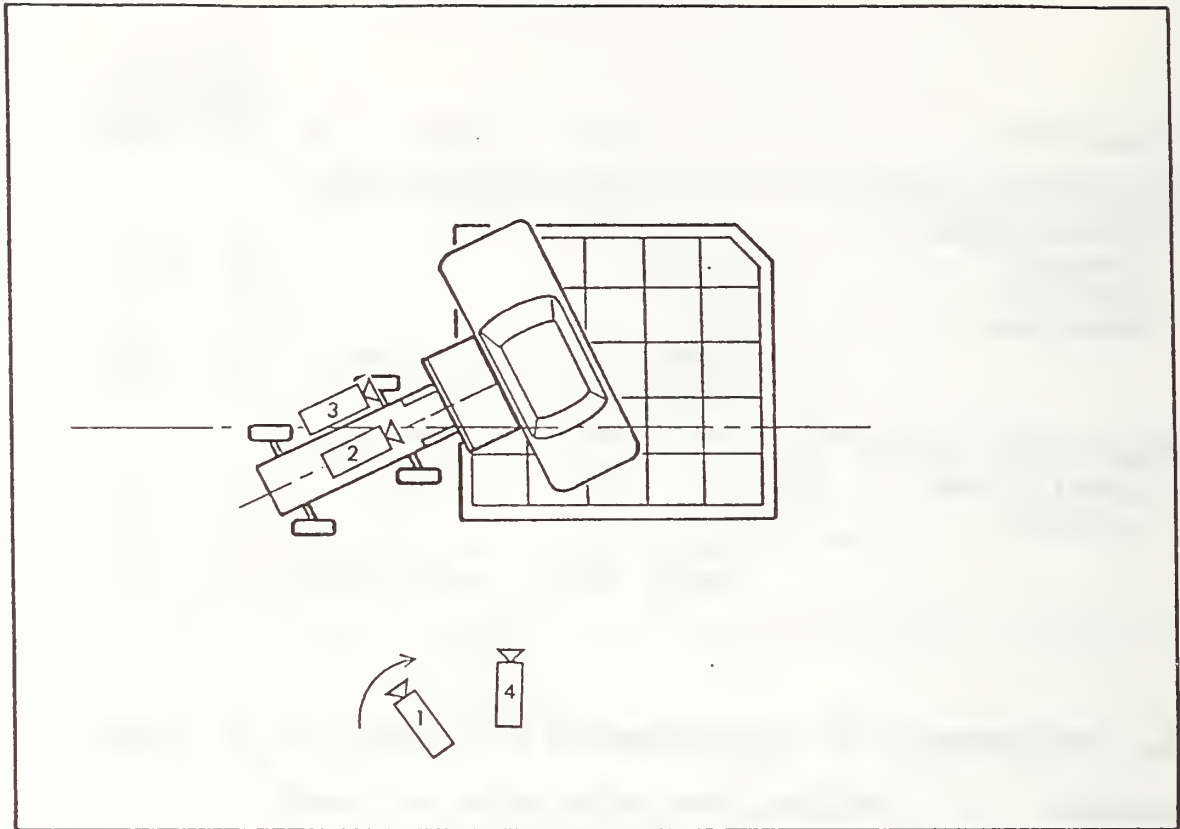
No.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX	G MSEC	MAX	G MSEC
1	CENTER OF GRAVITY	74.2	0.0	12.2				
	LONGITUDINAL				1.3	161.0	17.2	41.6
	LATERAL				2.2	137.9	8.4	34.8
	VERTICAL				4.9	174.0	3.5	228.0
	RESULTANT				18.5	41.1		
		Delta VX is -19.6 MPH @ 112.6 MSEC						
		Delta VY is -6.5 MPH @ 112.6 MSEC						
2	REAR FRAME MEMBER	0.0	0.0	24.0				
	LONGITUDINAL				2.0	130.8	17.0	42.6
	LATERAL				4.4	26.3	4.6	88.5
		Delta VX is -18.4 MPH @ 112.6 MSEC						
		Delta VY is -2.0 MPH @ 112.6 MSEC						

* ALL MEASUREMENTS OF ACCELEROMETER LOCATIONS ARE IN INCHES.

REFERENCE: X: + FORWARD FROM REAR POINT OF FRAME
Y: + RIGHTWARD FROM BARRIER CENTERLINE
Z: + UPWARD FROM GROUND LEVEL

All measurements of accelerometer locations in inches.

CAMERA POSITIONS



CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Right panning	Kodak	16	24	Real-time documentation
2	Onboard mov. bar. wide	Photosonic 1B	13	500	Impact point
3	Onboard mov. bar. tight	Photosonic 1B	25	500	Close-up of impact point
4	Right	Phootosnic 1B	25	498	Overall view

APPENDIX A

PHOTOGRAPHS



Figure A-1. PRE-TEST VEHICLE FRONT AND BARRIER VIEW



Figure A-2. POST-TEST VEHICLE FRONT AND BARRIER VIEW



Figure A-3. PRE-TEST VEHICLE RIGHT SIDE VIEW



Figure A-4. POST-TEST VEHICLE RIGHT SIDE VIEW



Figure A-5. PRE-TEST VEHICLE REAR AND BARRIER VIEW



Figure A-6. POST-TEST VEHICLE REAR AND BARRIER VIEW



Figure A-7. PRE-TEST VEHICLE LEFT SIDE AND BARRIER VIEW



Figure A-8. POST-TEST VEHICLE LEFT SIDE AND BARRIER VIEW



Figure A-9. POST-TEST VEHICLE LEFT SIDE CLOSE-UP VIEW

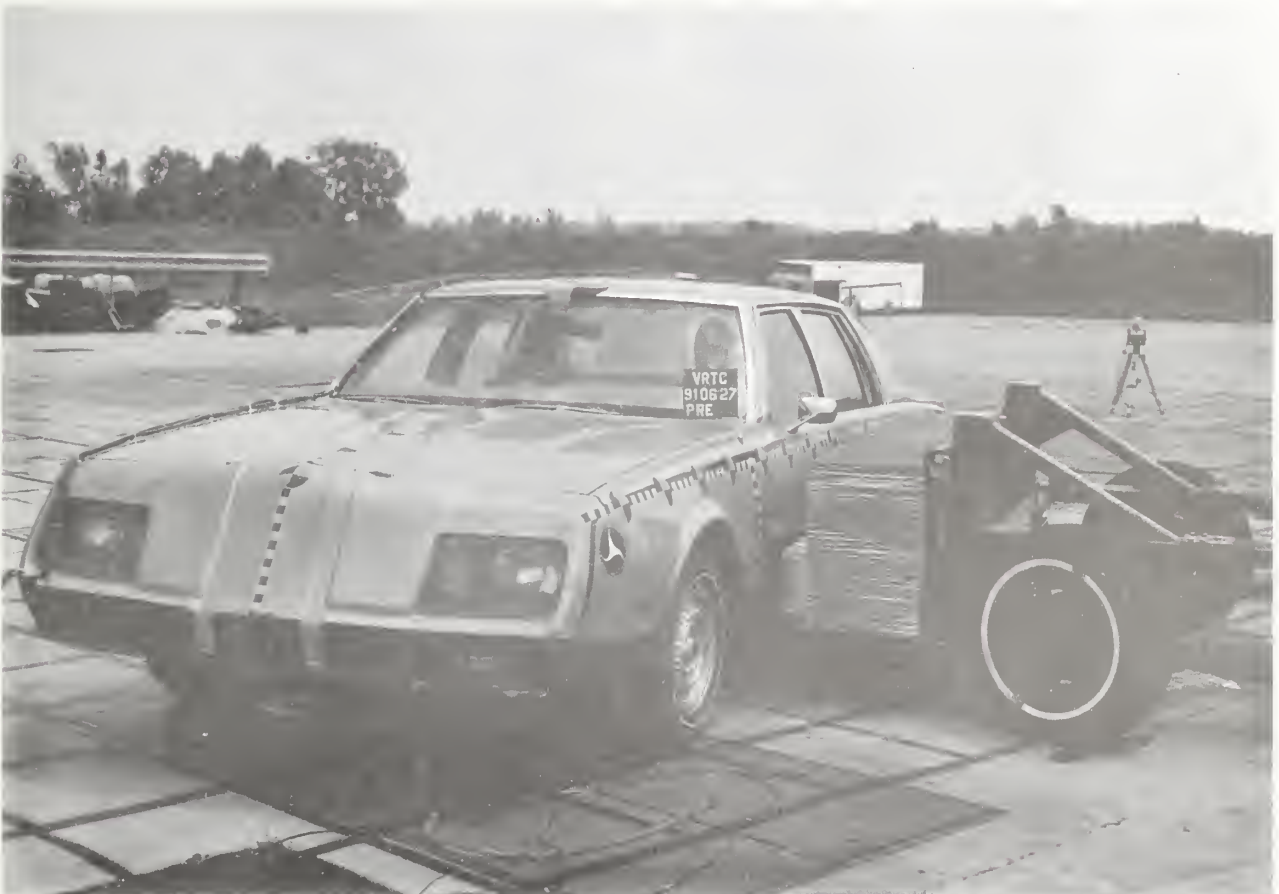


Figure A-10. PRE-TEST VEHICLE LEFT FRONT AND BARRIER VIEW



Figure A-11. POST-TEST VEHICLE LEFT FRONT AND BARRIER VIEW



Figure A-12. PRE-TEST VEHICLE LEFT REAR AND BARRIER VIEW



Figure A-13. POST-TEST VEHICLE LEFT REAR AND BARRIER VIEW

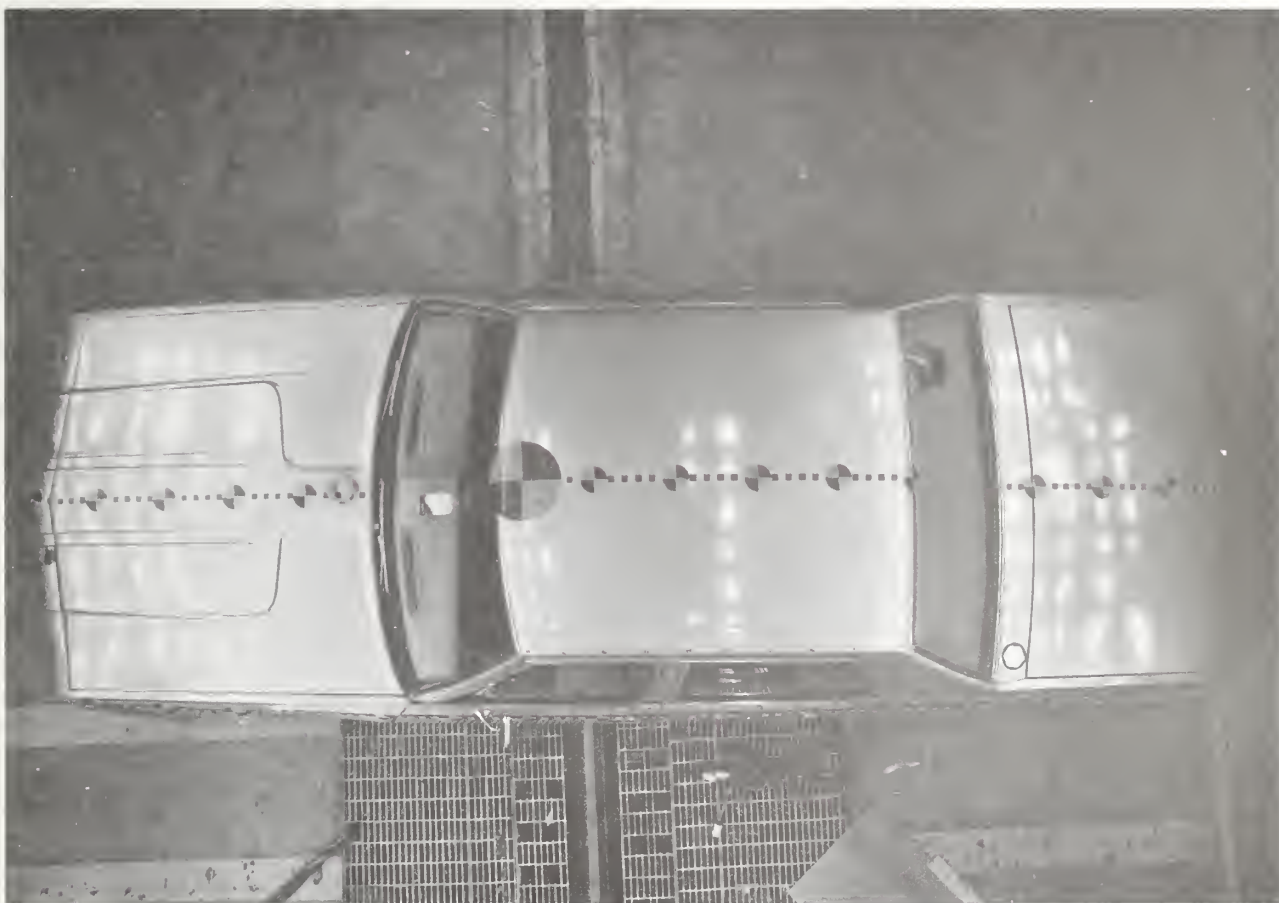


Figure A-14. PRE-TEST VEHICLE TOP VIEW

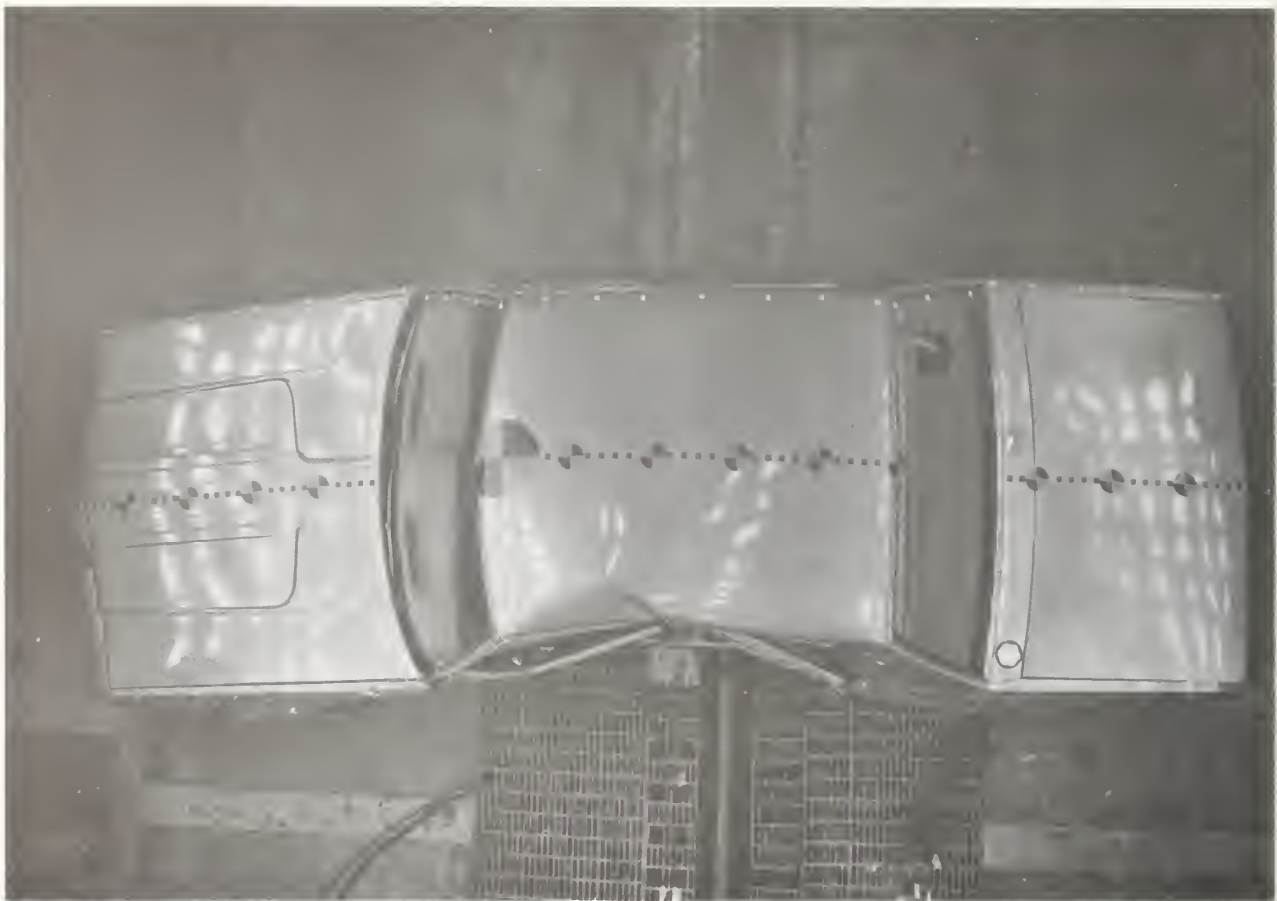


Figure A-15. POST-TEST VEHICLE TOP VIEW



Figure A-16. PRE-TEST DRIVER DUMMY VIEW



Figure A-17. POST-TEST DRIVER DUMMY VIEW



Figure A-18. PRE-TEST DRIVER DUMMY AND INTERIOR - VIEW 1



Figure A-19. PRE-TEST DRIVER DUMMY AND INTERIOR - VIEW 2



Figure A-20. PRE-TEST PASSENGER DUMMY VIEW



Figure A-21. POST-TEST PASSENGER DUMMY VIEW



Figure A-22. PRE-TEST PASSENGER DUMMY AND INTERIOR - VIEW 1



Figure A-23. PRE-TEST PASSENGER DUMMY AND INTERIOR - VIEW 2



Figure A-24. POST-TEST DRIVER DUMMY CONTACT VIEW



Figure A-25. POST-TEST PASSENGER DUMMY CONTACT VIEW

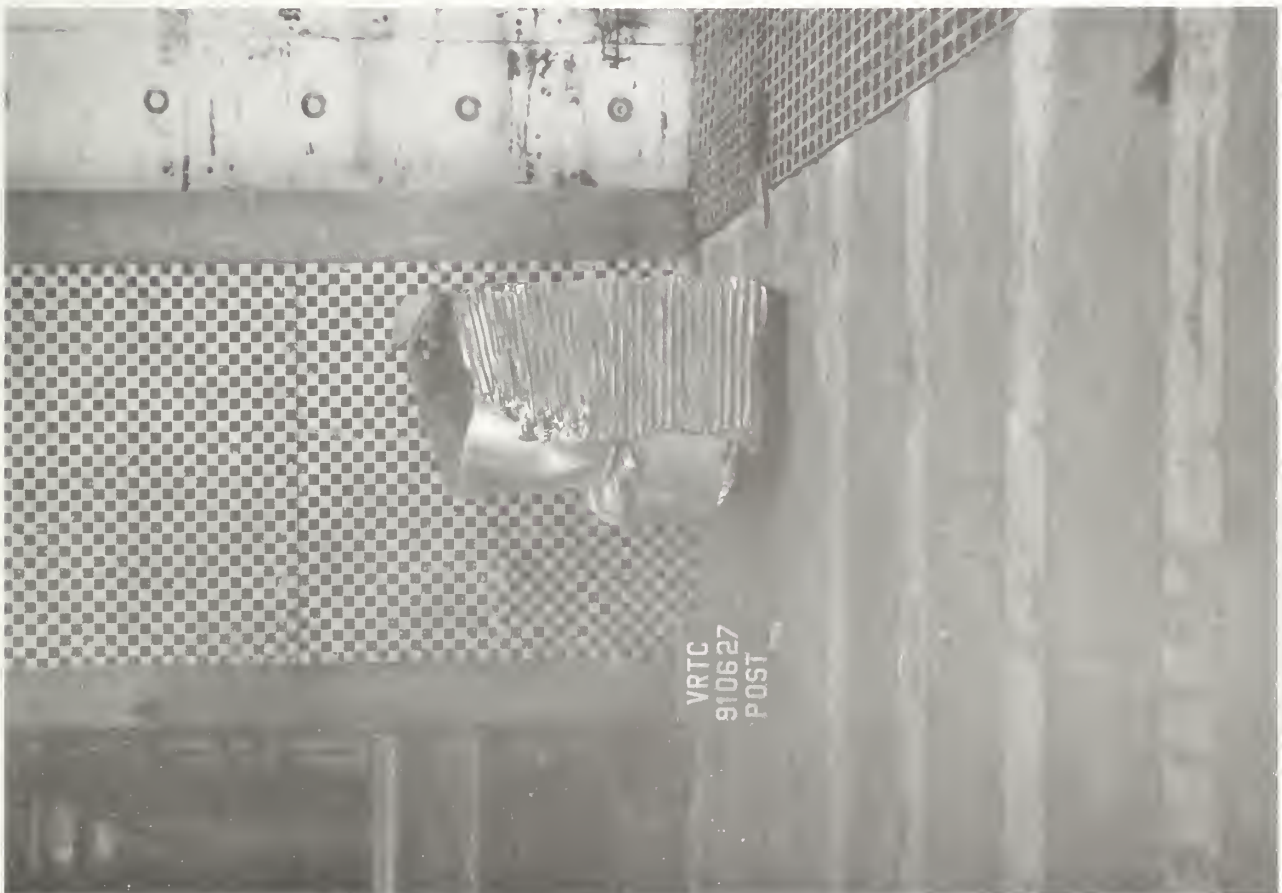


Figure A-26. POST-TEST BARRIER FACE - VIEW 1

VRIC , 910627

LEFT SIDE IMPACT

91178

HEDX61

FILTER = ALPF 1650/ 5214/ -40

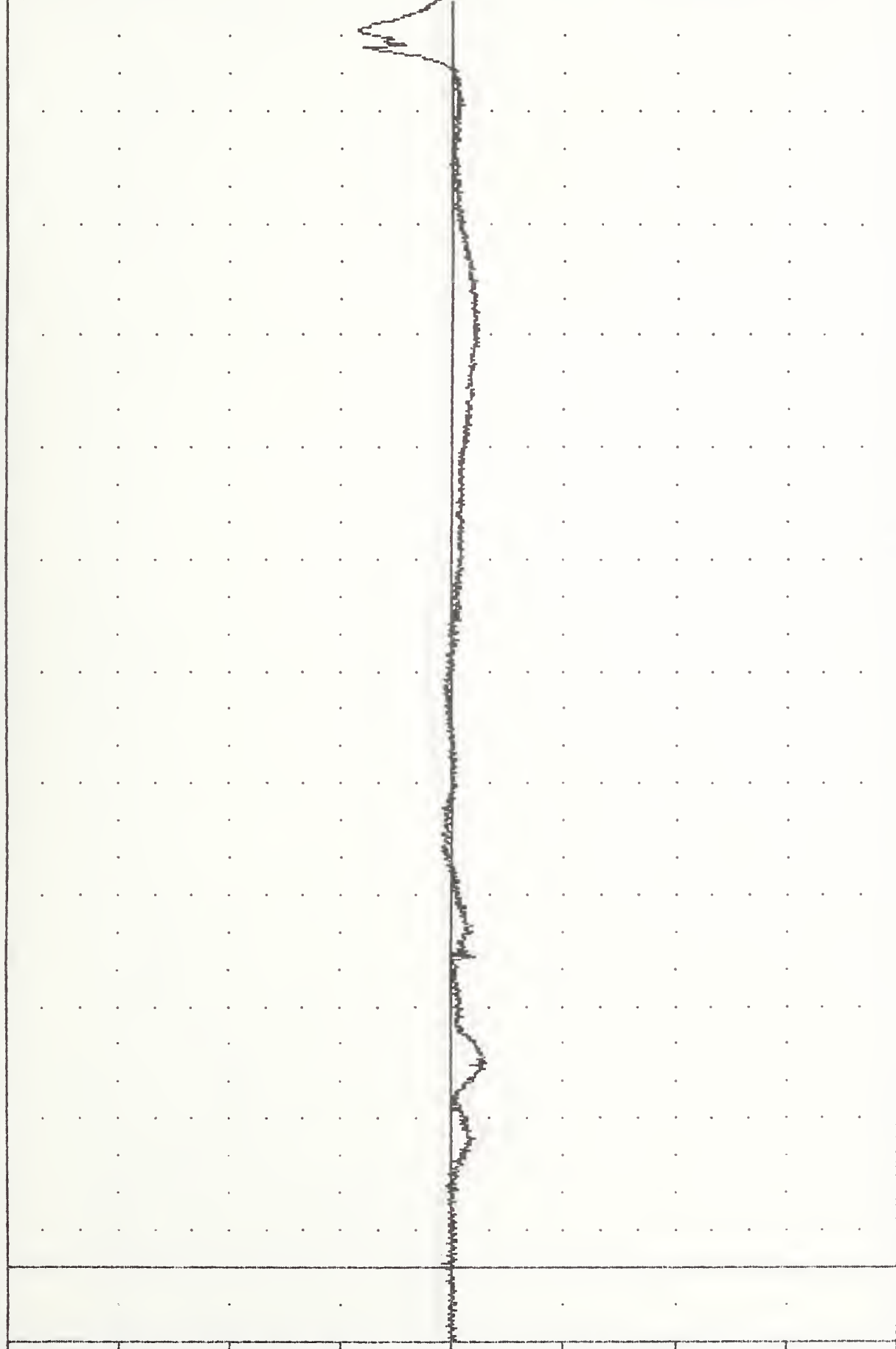
MIN. MAX VALUES = -18.348

54.88 ,

51.25 s

331.25

ACCELERATION (G)



TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER HEAD X-AXIS ACCELERATION

VRTC . 910627

LEFT SIDE IMPACT

91178

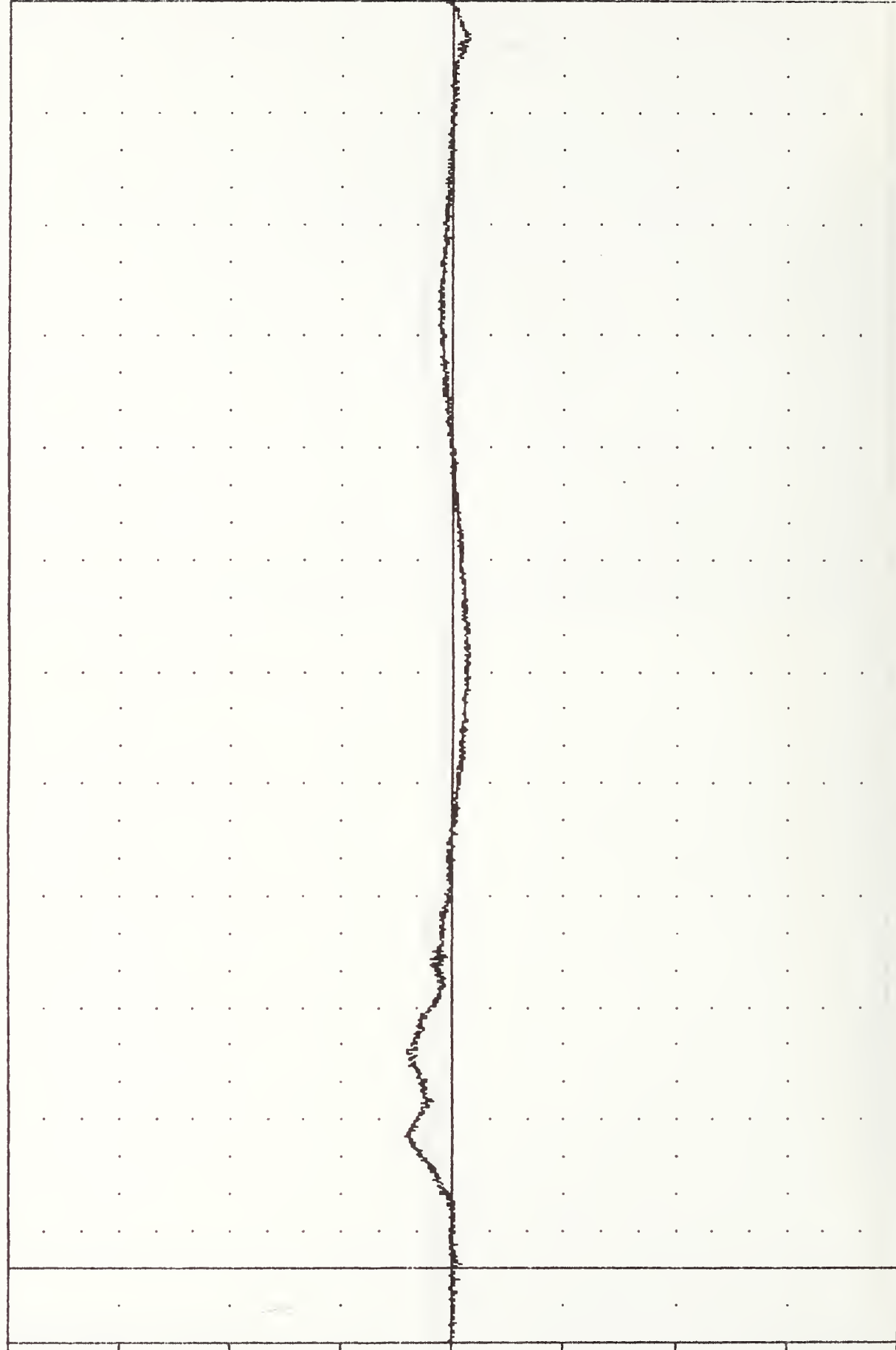
HEDYG1

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = -9.168 162.25 ,

25.14 0 35.63

ACCELERATION (G)



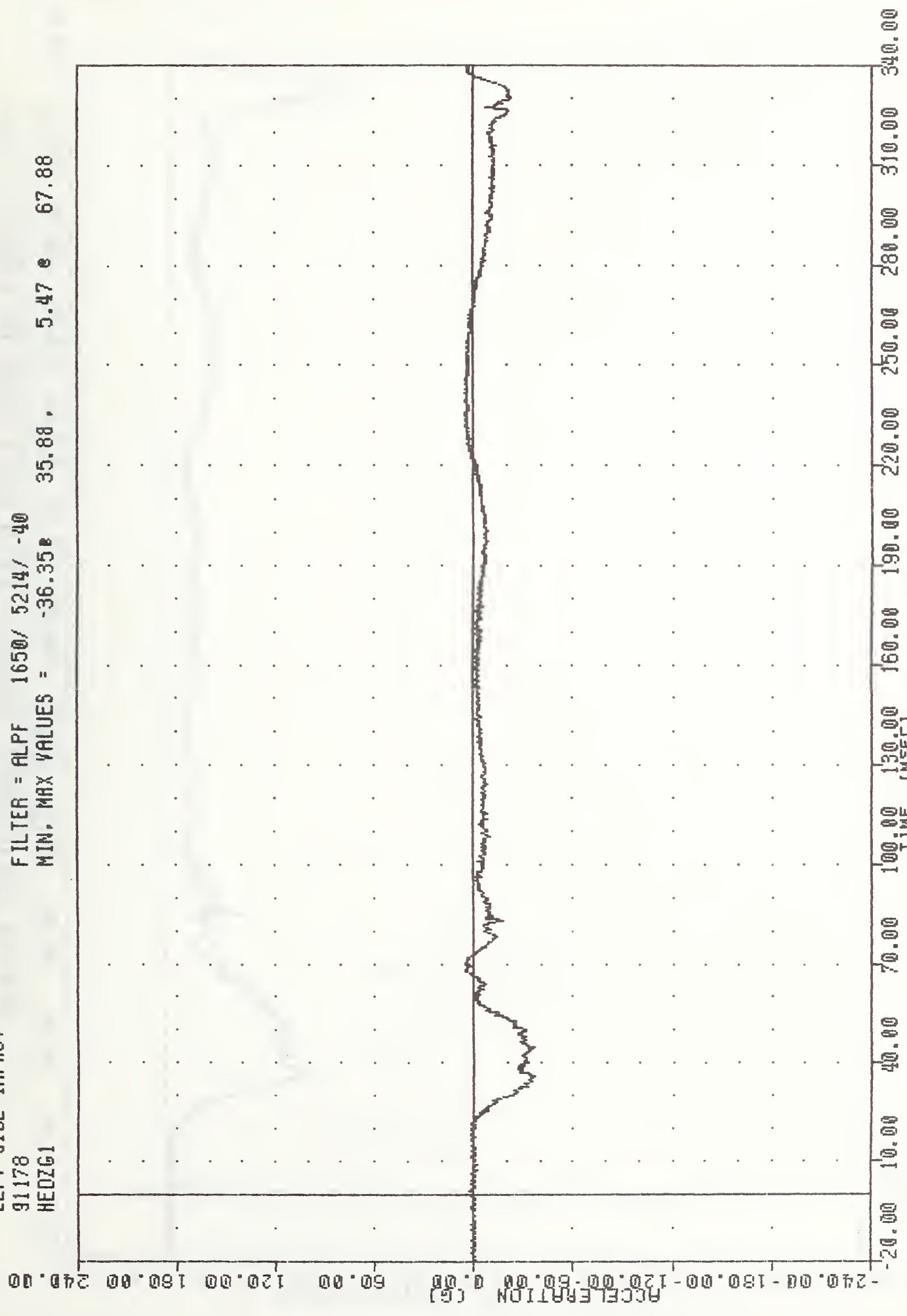
-20.00 10.00 20.00 30.00 40.00 50.00 60.00 70.00 80.00 90.00 100.00 110.00 120.00 130.00 140.00 150.00 160.00 170.00 180.00 190.00 200.00 210.00 220.00 230.00 240.00 250.00 260.00 270.00 280.00 290.00 300.00 310.00 320.00 330.00 340.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER HEAD Y-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
HEDZG1

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -36.35 35.88 ,

5.47 e 67.88



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER HEAD Z-AXIS ACCELERATION

VRIC , 910627

LEFT SIDE IMPACT

91178

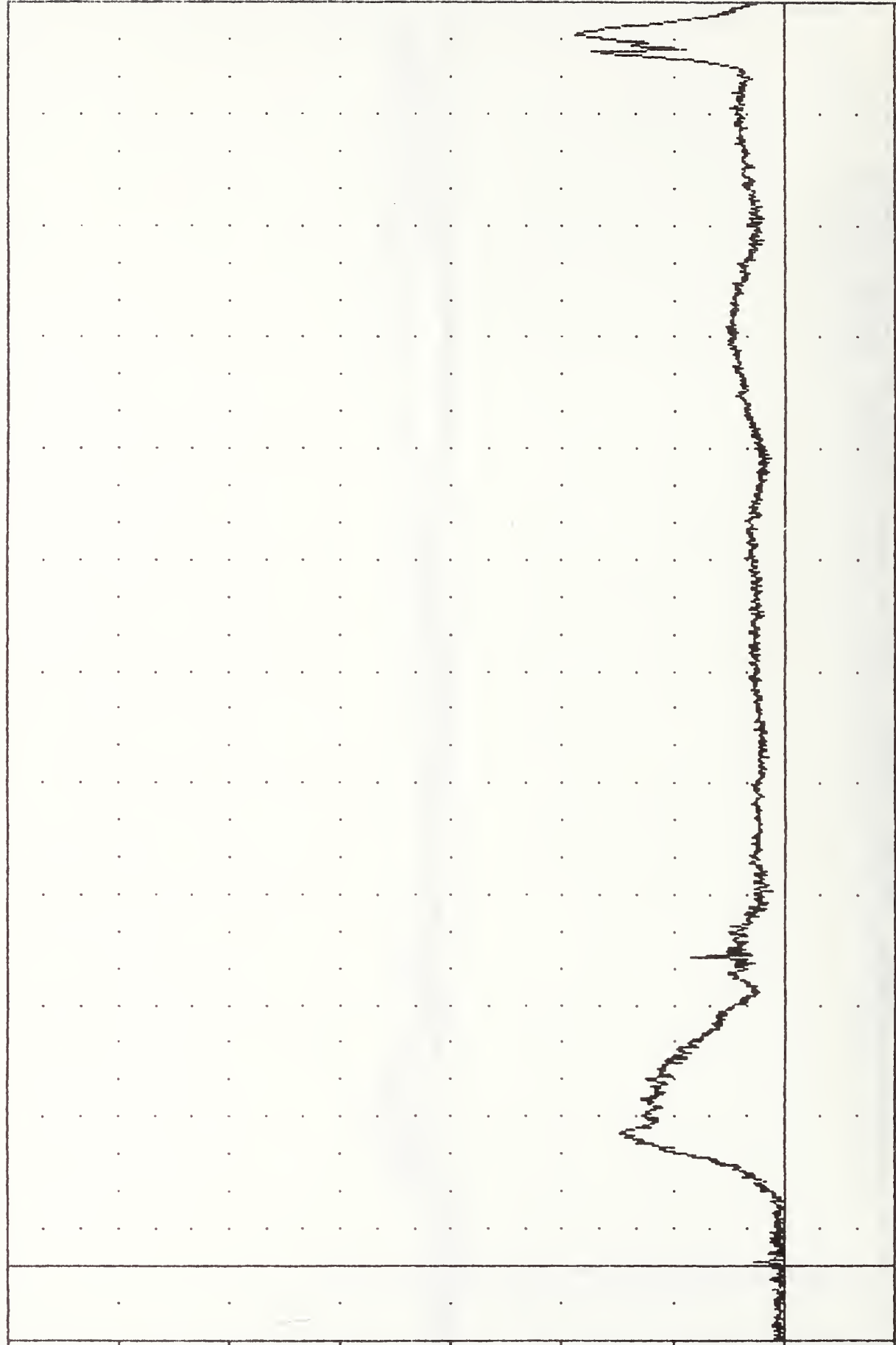
HEADG1

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = 0.148

56.14 @ 331.38

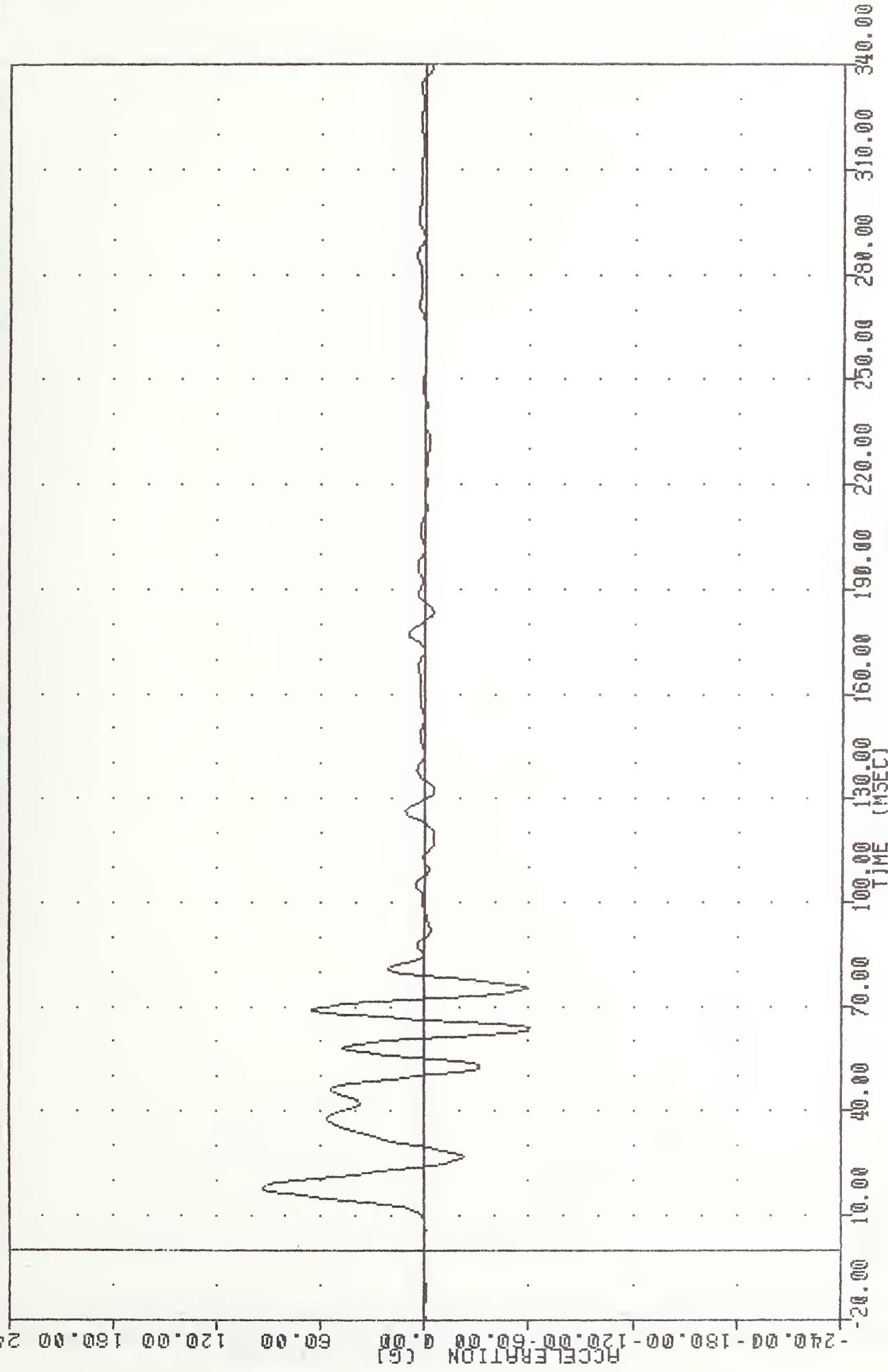
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER HEAD RESULTANT ACCELERATION

VRTC 910627
LEFT SIDE IMPACT
91178
SHLYG1

FILTER = HSR(136/ 189/ -50
MIN. MAX VALUES = -60.71e 63.75, 93.72 e 18.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT SHOULDER Y-AXIS ACCELERATION

NRIC , 910627

LEFT SIDE IMPACT

91178

SHLYV1

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -0.018 0.50 .

35.90 300.00

40.00

30.00

20.00

10.00

0.00

-10.00

-20.00

-30.00

-40.00

0.00

10.00

20.00

30.00

40.00

50.00

60.00

70.00

80.00

90.00

VELOCITY (MPH)

0.00

25.00

50.00

75.00

100.00

125.00

150.00

175.00

200.00

225.00

250.00

275.00

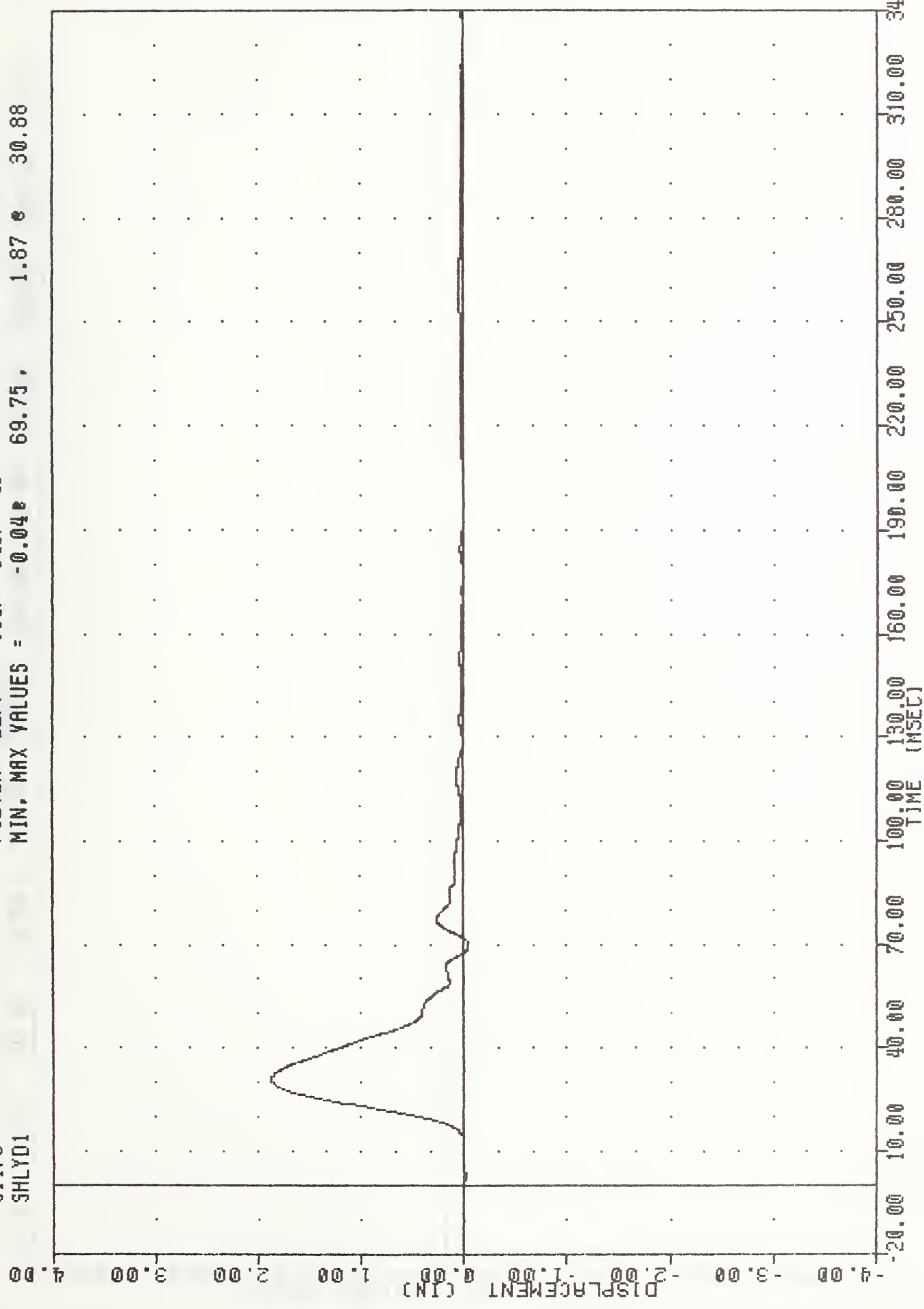
300.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT SHOULDER Y-AXIS VELOCITY

VRTC , 910627
LEFT SIDE IMPACT
91178
SHLYD1

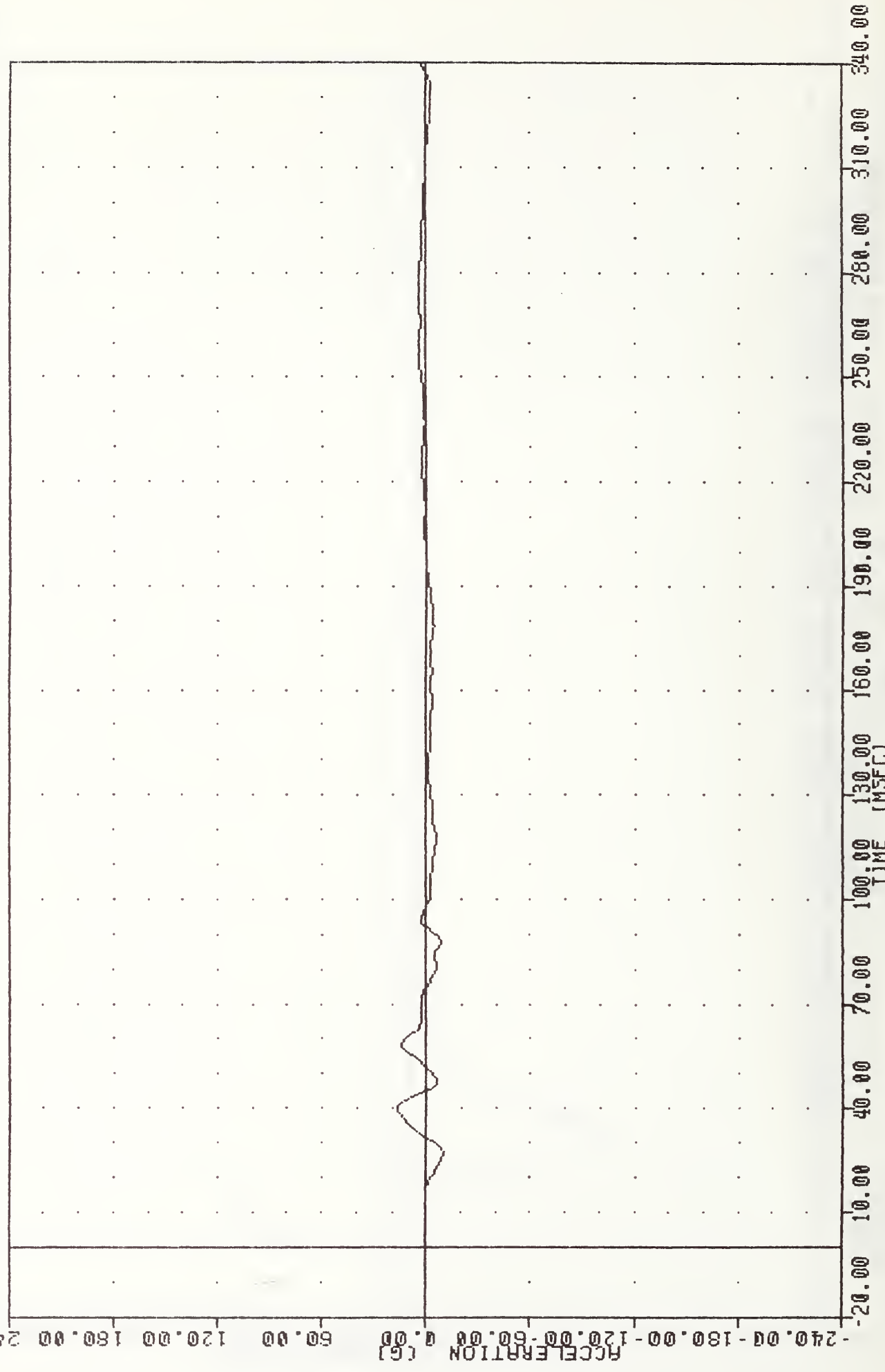
FILTER = BLPF 300/ 949/ -40
MIN, MAX VALUES = -0.048 69.75, 1.87 e 30.88



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT SHOULDER TO SPINE DISPLACEMENT

VRTC , 910627
LEFT SIDE IMPACT
91178
T01XG1

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -9.57e 26.87, 16.72 e 40.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER UPPER SPINE X-AXIS ACCELERATION

VRTC , 910627

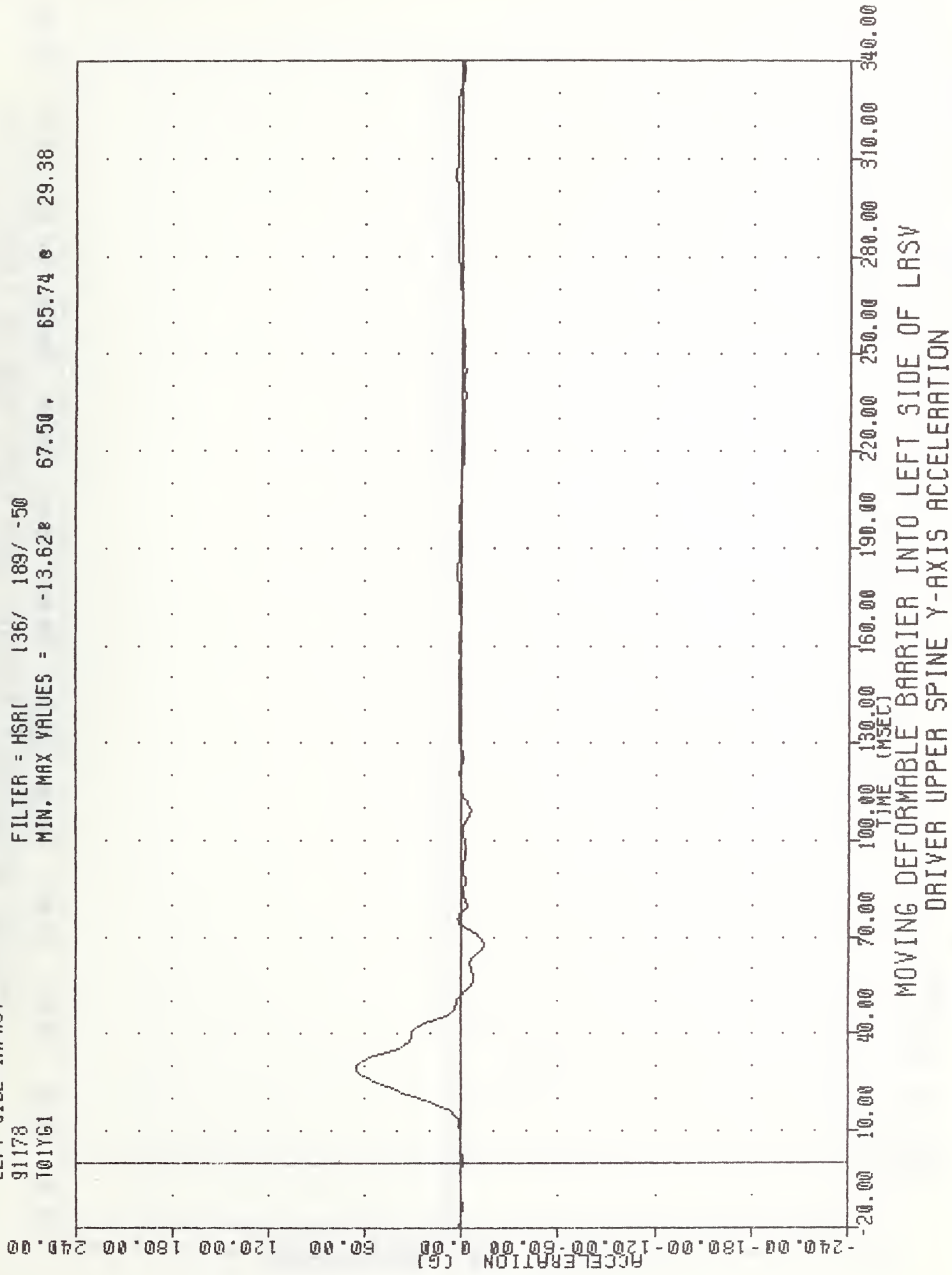
LEFT SIDE IMPACT

91178

T01YG1

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -13.628 67.50 , 65.74 0 29.38



VRTC , 910627

LEFT SIDE IMPACT

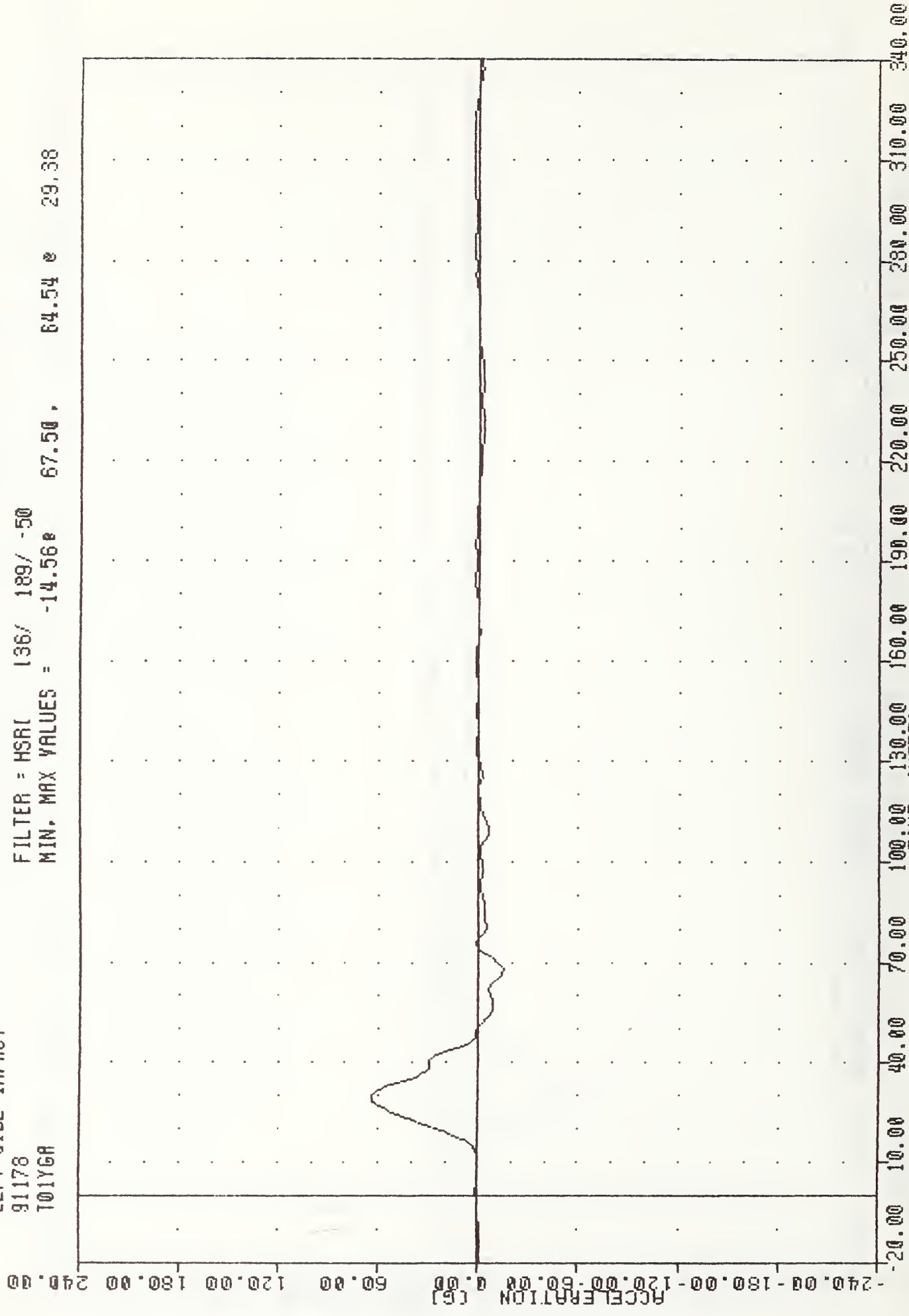
91178

T01Y6A

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -14.56 67.50 ,

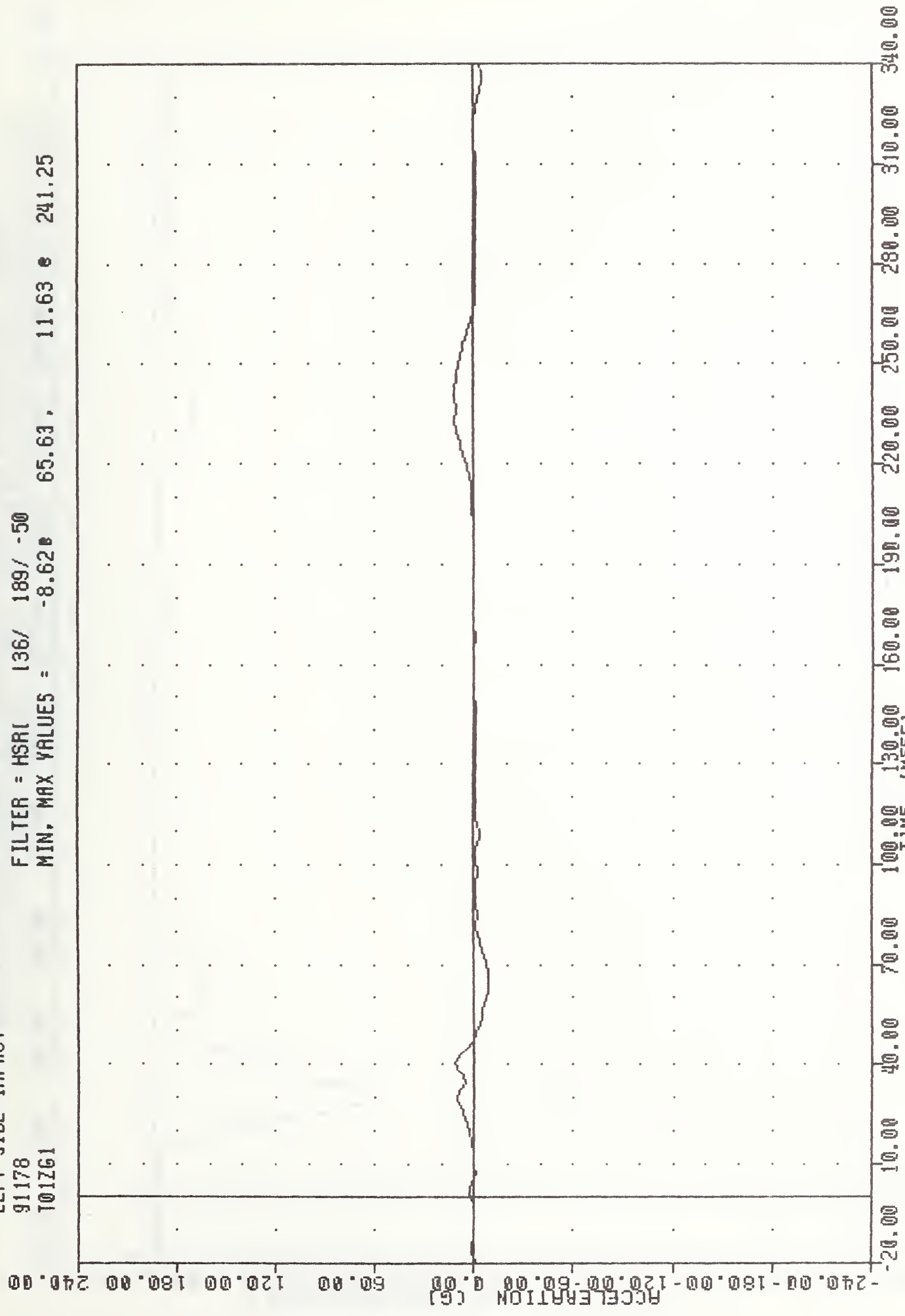
64.54 @ 29.38



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER UPPER SPINE Y-AXIS REDUNDANT ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
101261

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -8.628 65.63, 11.63 241.25



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER UPPER SPINE Z-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

T01RG1

FILTER = HSRI 136/ 189/ -50

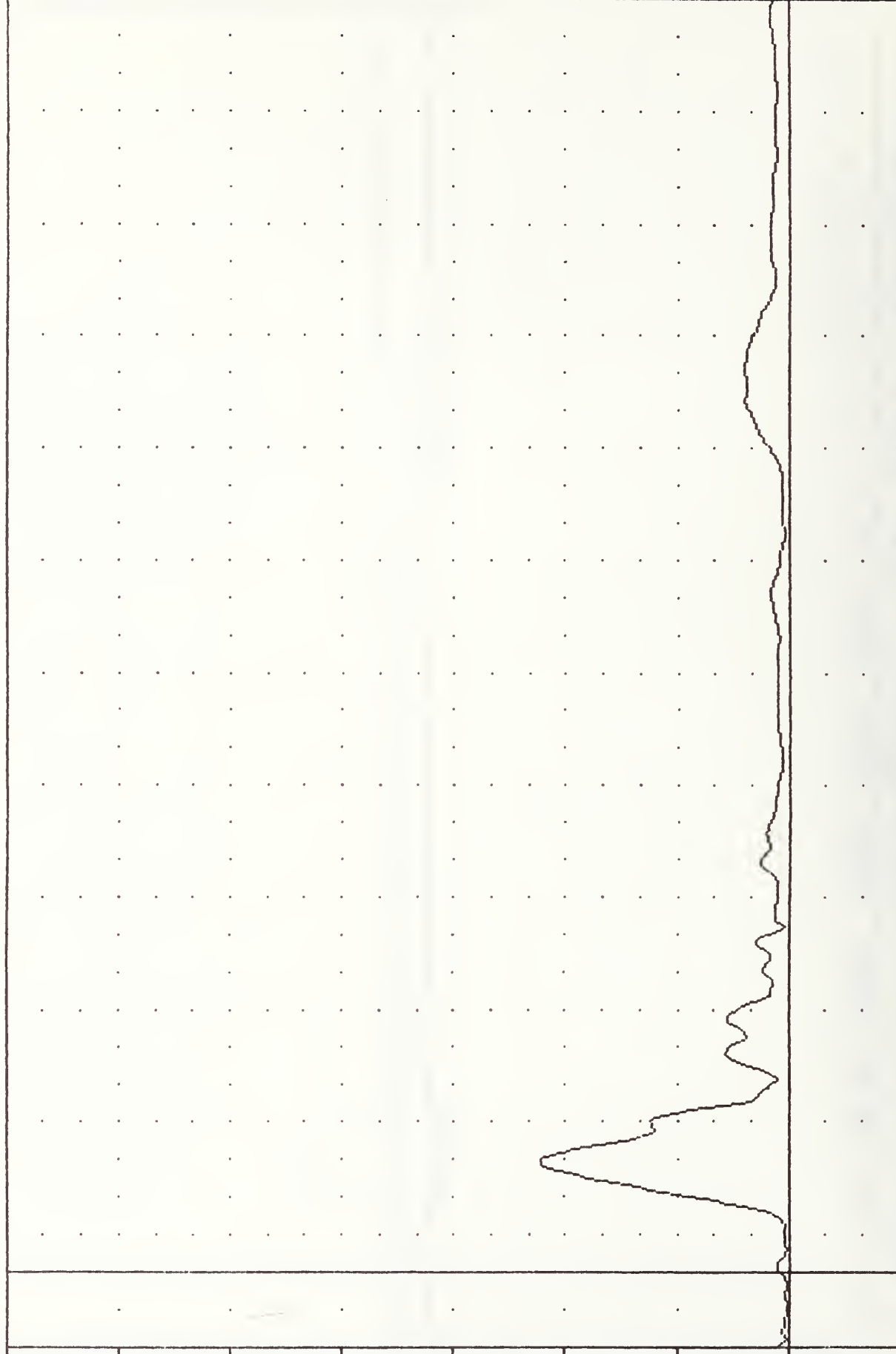
MIN, MAX VALUES = 0.51g

-3.13,

86.82 g

29.38

ACCELERATION (G)

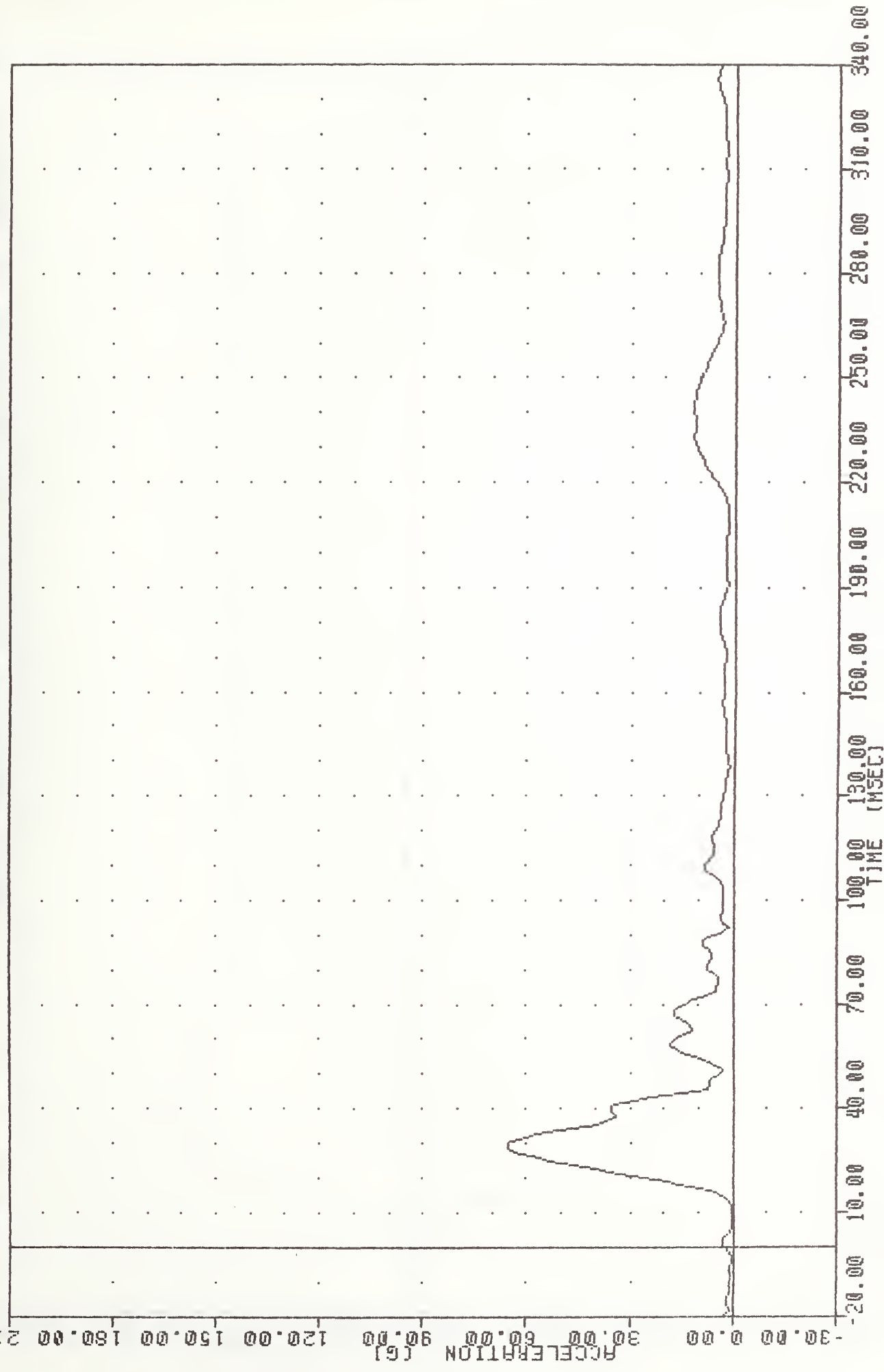


TIME (msec)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER UPPER SPINE RESULTANT ACCELERATION

VRTC 910627
LEFT SIDE IMPACT
91178
T01RGA

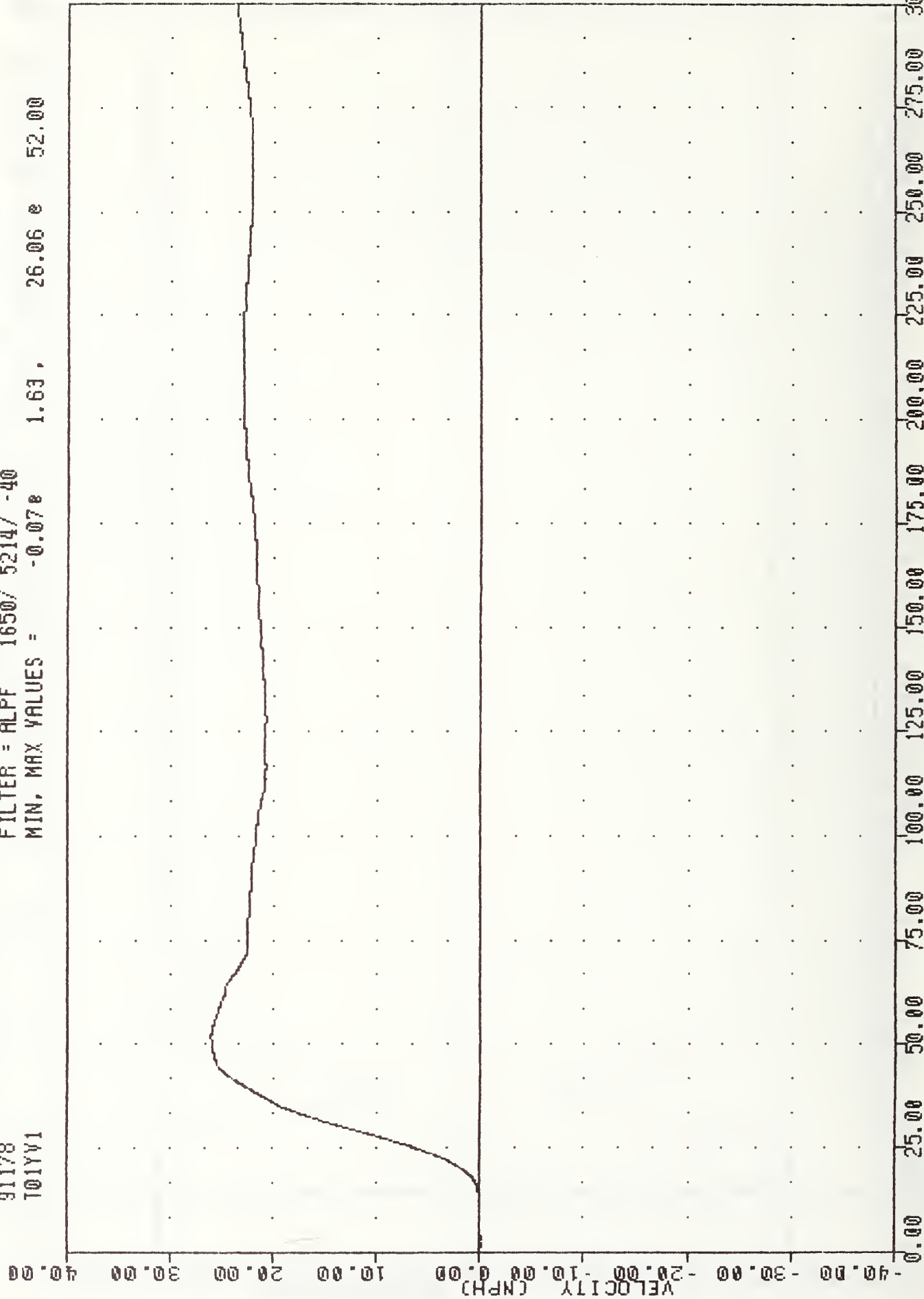
FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = 0.26e 6.25. 65.65 e 29.38



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER UPPER SPINE REDUNDANT RESULTANT ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
T01YV1

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -0.07e 1.63, 26.06 e 52.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER UPPER SPINE Y-AXIS VELOCITY

VRTC , 910627

LEFT SIDE IMPACT

91178

T01YVA

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = 0.00e 0.00, 25.24 e 49.88

40.00

30.00

20.00

10.00

0.00

-10.00

-20.00

-30.00

-40.00

VELOCITY (MPH)

0.00

25.00

50.00

75.00

100.00

125.00

150.00

175.00

200.00

225.00

250.00

275.00

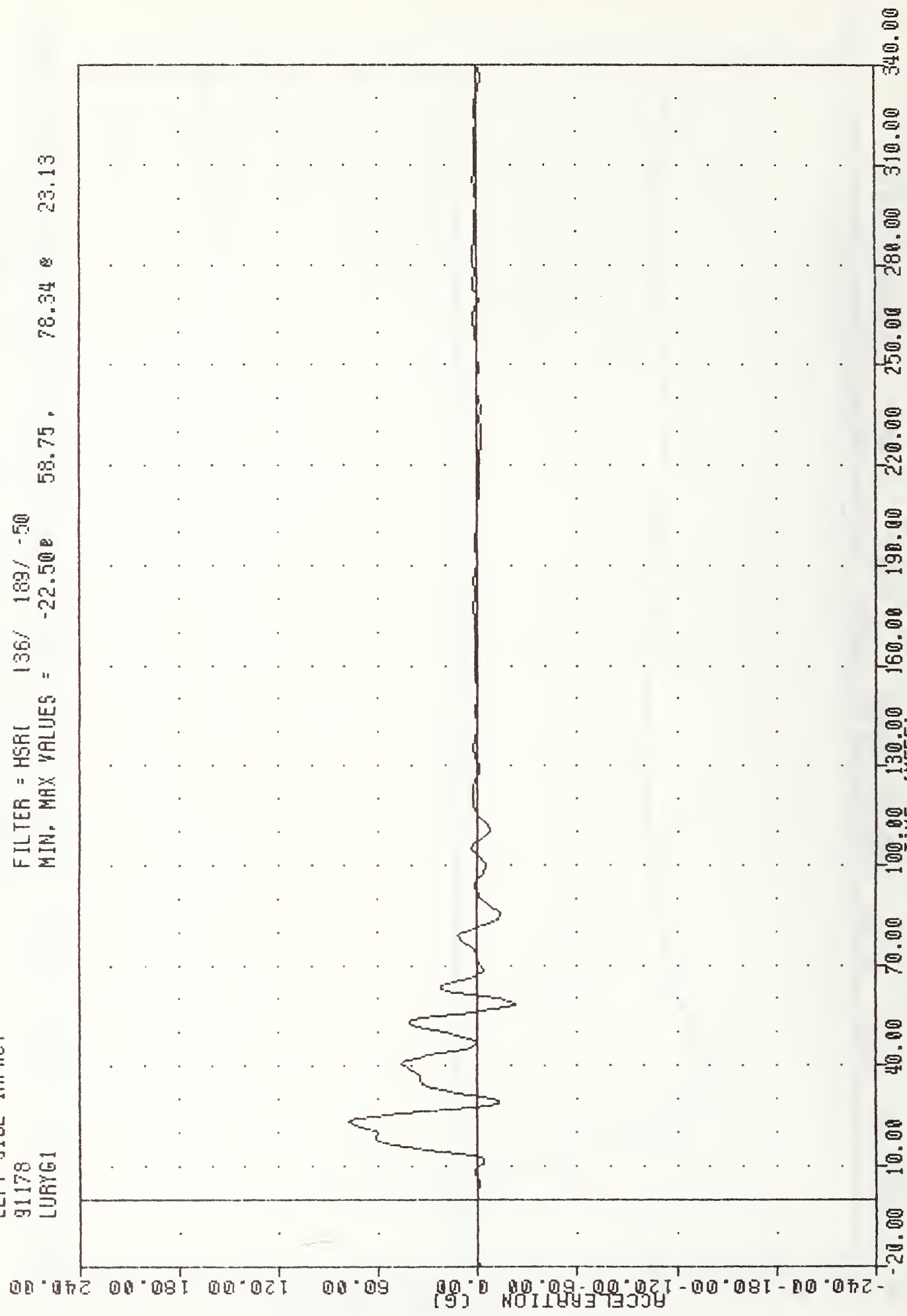
300.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER UPPER SPINE Y-AXIS REDUNDANT VELOCITY

VRTC , 910627
LEFT SIDE IMPACT
91178
LURY61

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -22.500 58.75 , 78.34 0 23.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT UPPER THORAX RIB Y-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

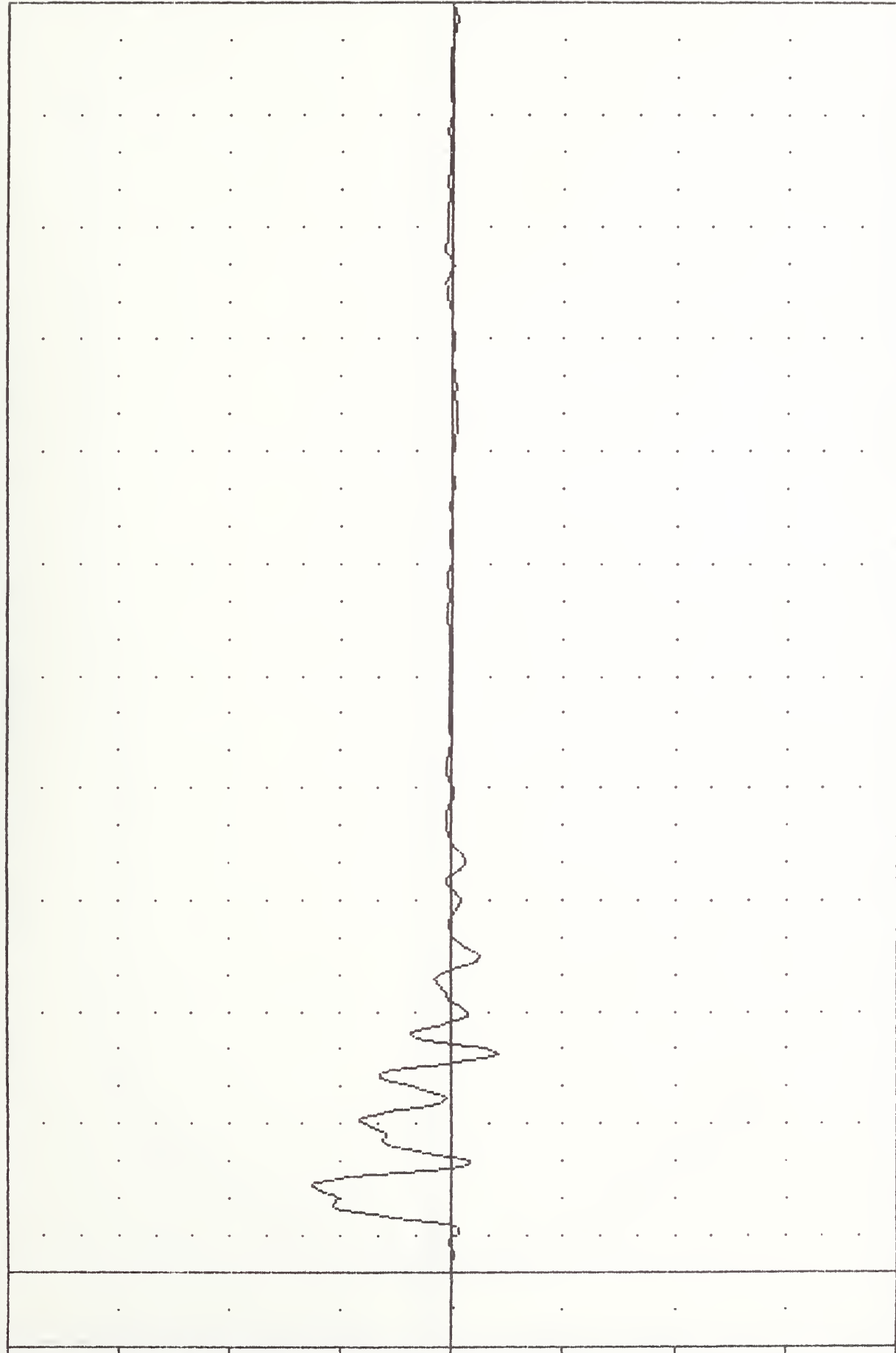
91178

LURYGA

FILTER = HSR1 136/ 189/ -50

MIN. MAX VALUES = -24.68 58.75 75.54 23.75

ACCELERATION (G)



TIME (msec)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT UPPER THORAX AIB Y-AXIS REDUNDANT ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

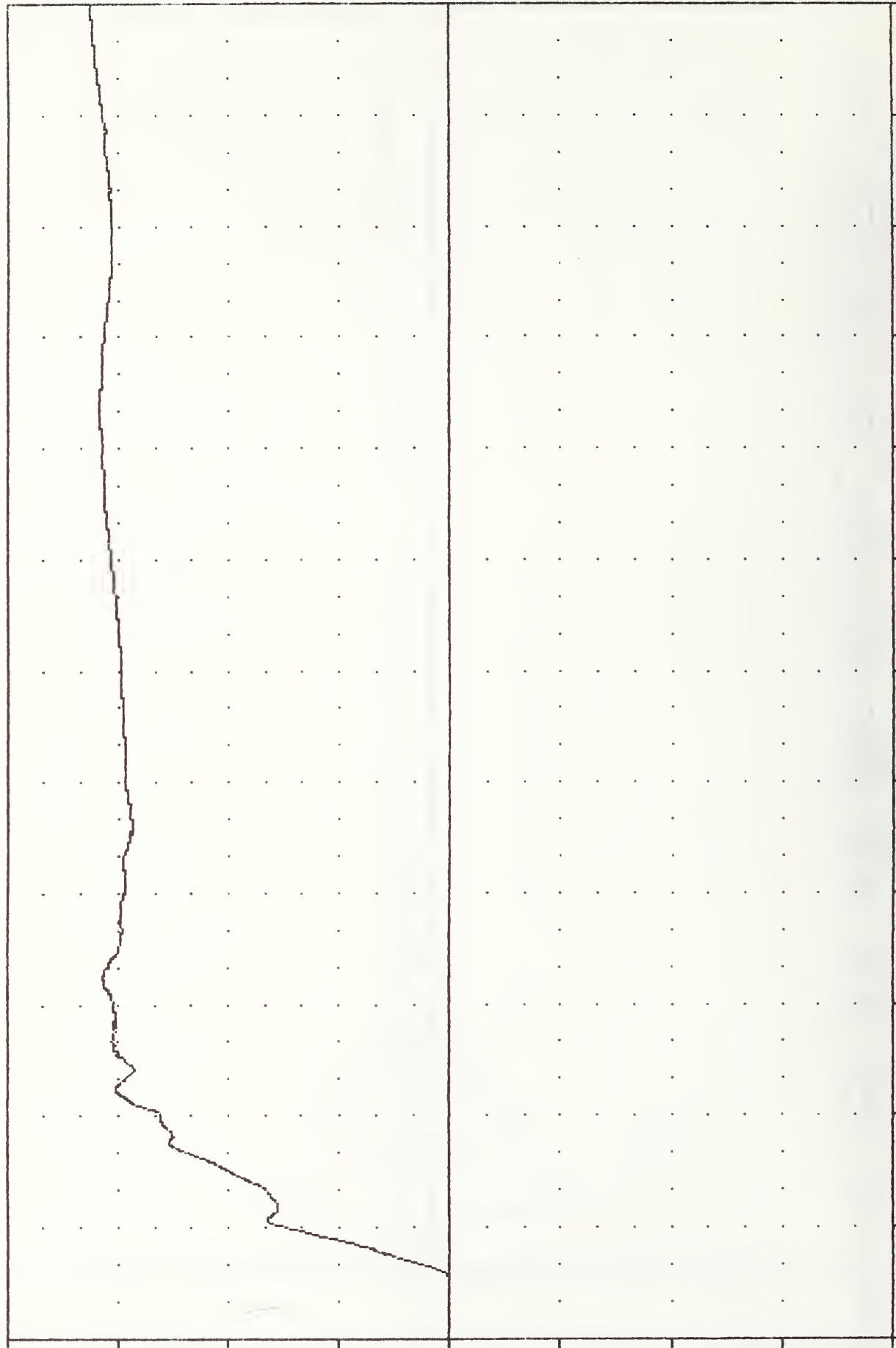
91178

LURYV1

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = 0.00 0.25 , 32.46 300.00

40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00
VELOCITY (NPH)



0.00 25.00 50.00 75.00 100.00 125.00 150.00 175.00 200.00 225.00 250.00 275.00 300.00
TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT UPPER THORAX RIB Y-AXIS VELOCITY

VRTC , 910627

LEFT SIDE IMPACT

91178

LURYVA

FILTER = ALPF 1650/ 5214/ -40

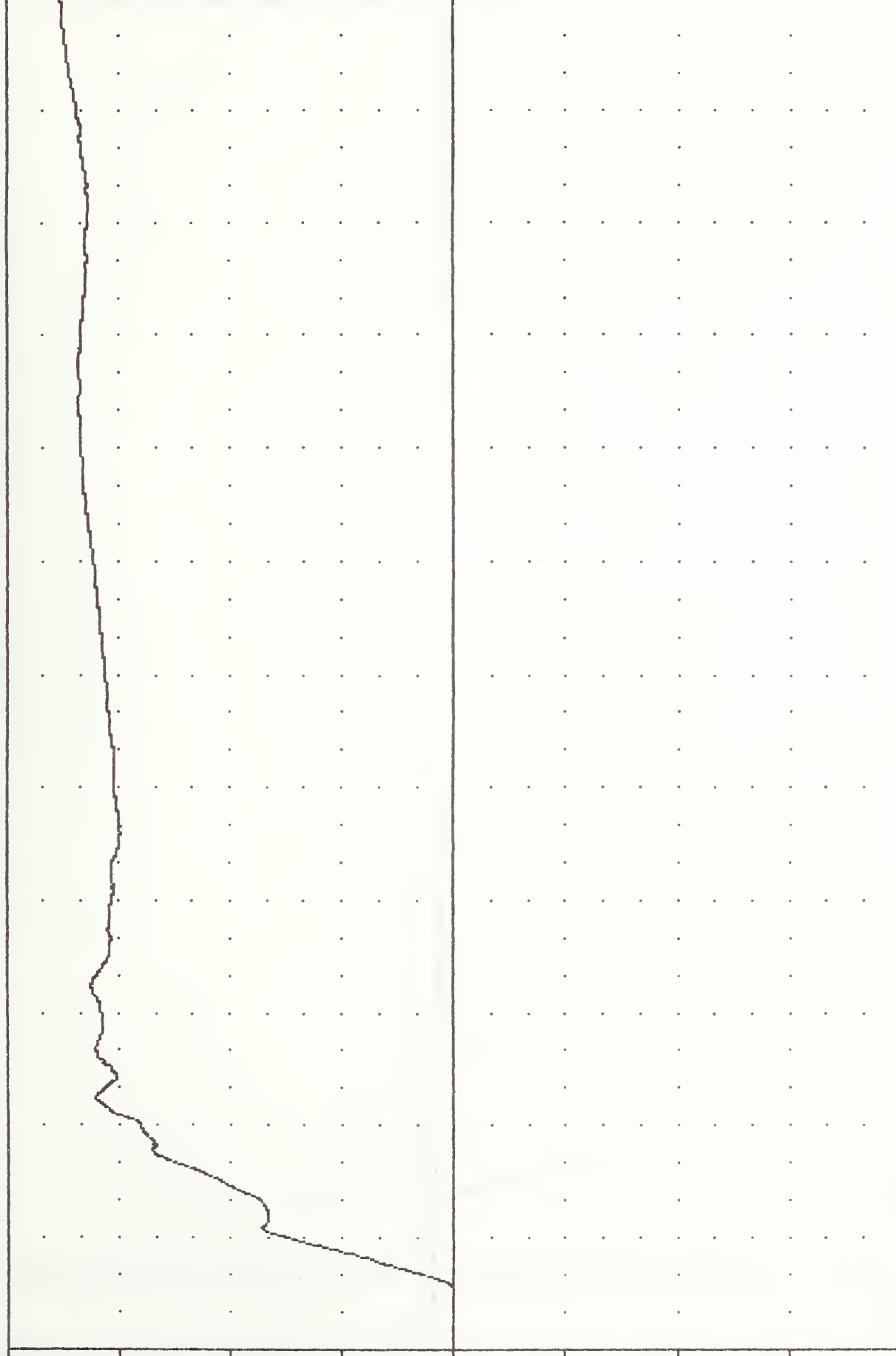
MIN, MAX VALUES = 0.00 0.00

0.00 ,

35.17 300.00

40.00
30.00
20.00
10.00
0.00
-10.00
-20.00
-30.00
-40.00

VELOCITY (MPH)



0.00 25.00 50.00 75.00 100.00 125.00 150.00 175.00 200.00 225.00 250.00 275.00 300.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LARSV
DRIVER LEFT UPPER THORAX RIB Y-AXIS REDUNDANT VELOCITY

VRTC , 910627

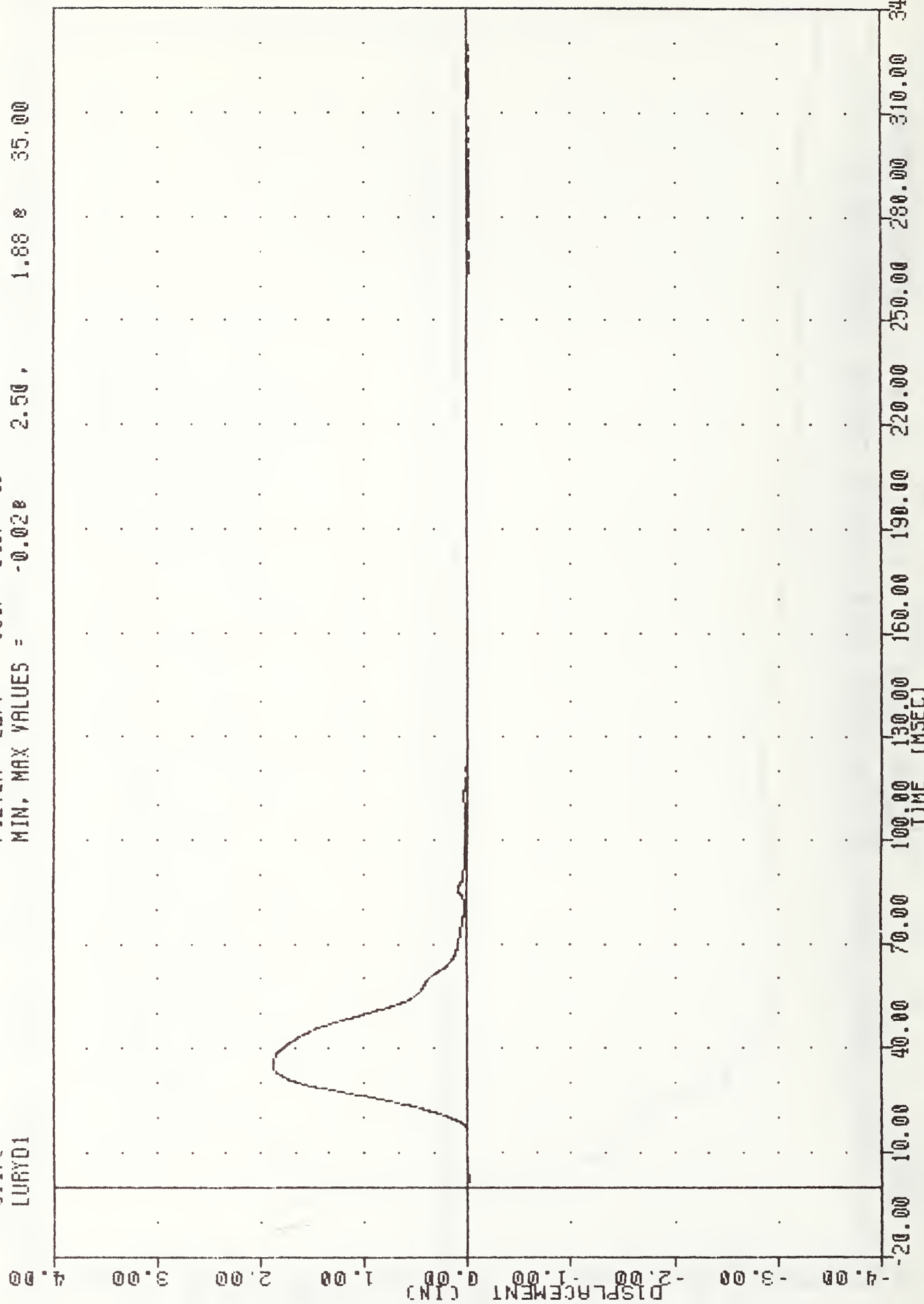
LEFT SIDE IMPACT

91178

LURYD1

FILTER = BLPF 300/ 949/ -40

MIN, MAX VALUES = -0.028 2.50, 1.88 35.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT UPPER THORAX RIB DISPLACEMENT

VRIC , 910627

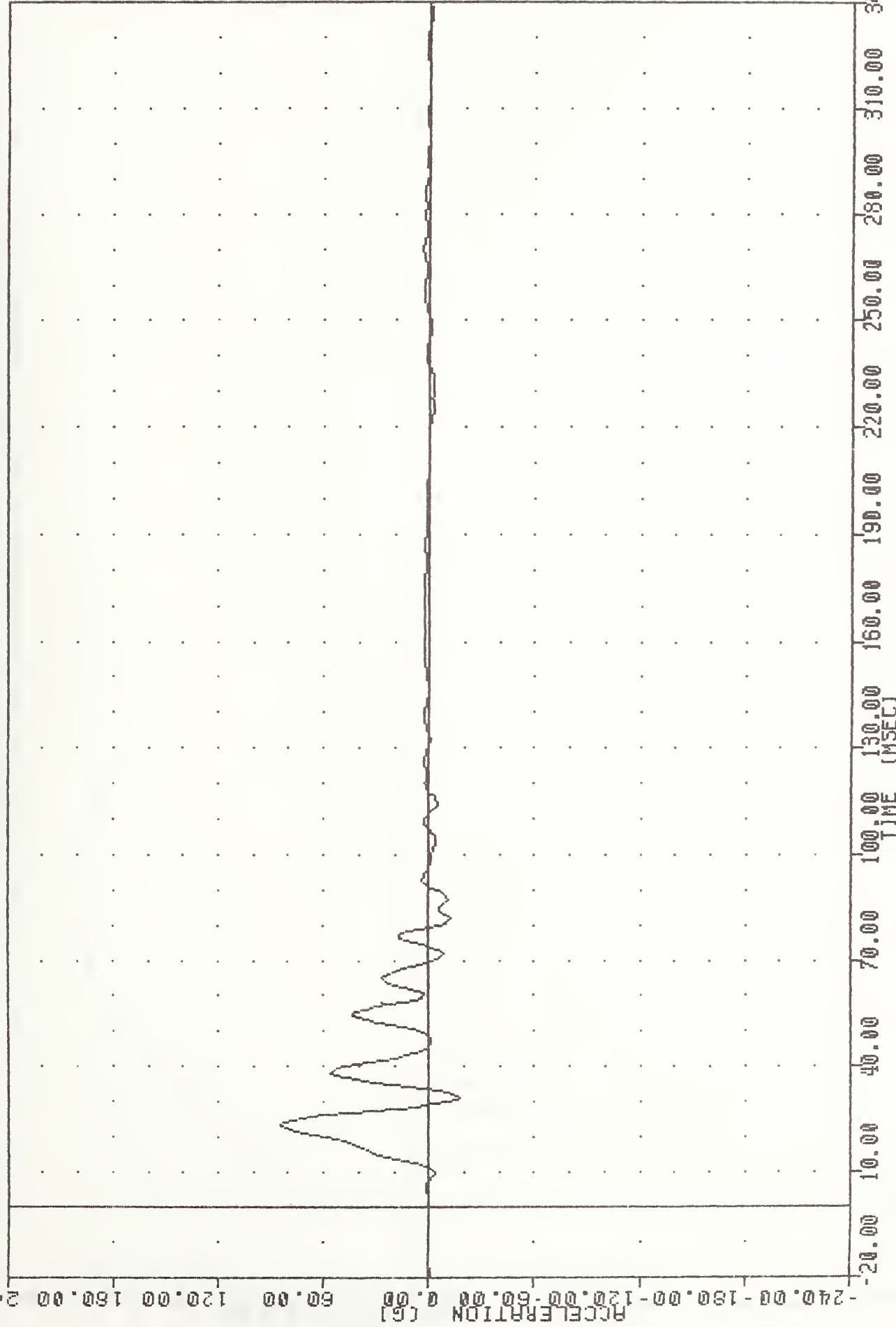
LEFT SIDE IMPACT

91178

LCRYG1

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -17.04 31.25 , 83.98 23.75



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRV
DRIVER LEFT CENTER THORAX RIB Y-AXIS ACCELERATION

VRIC , 910627

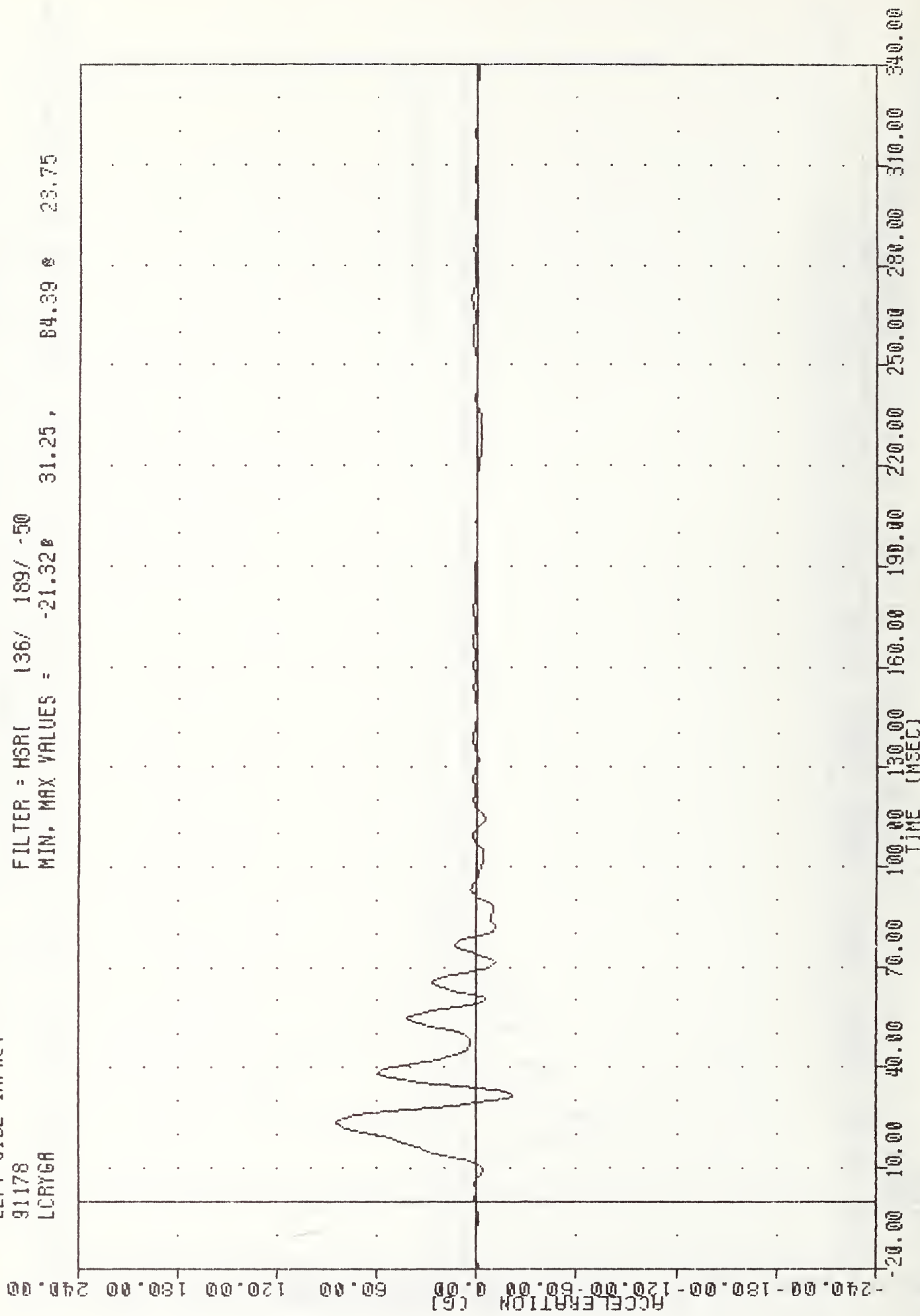
LEFT SIDE IMPACT

91178

LCRYGA

FILTER = HSR(136/ 189/ -50

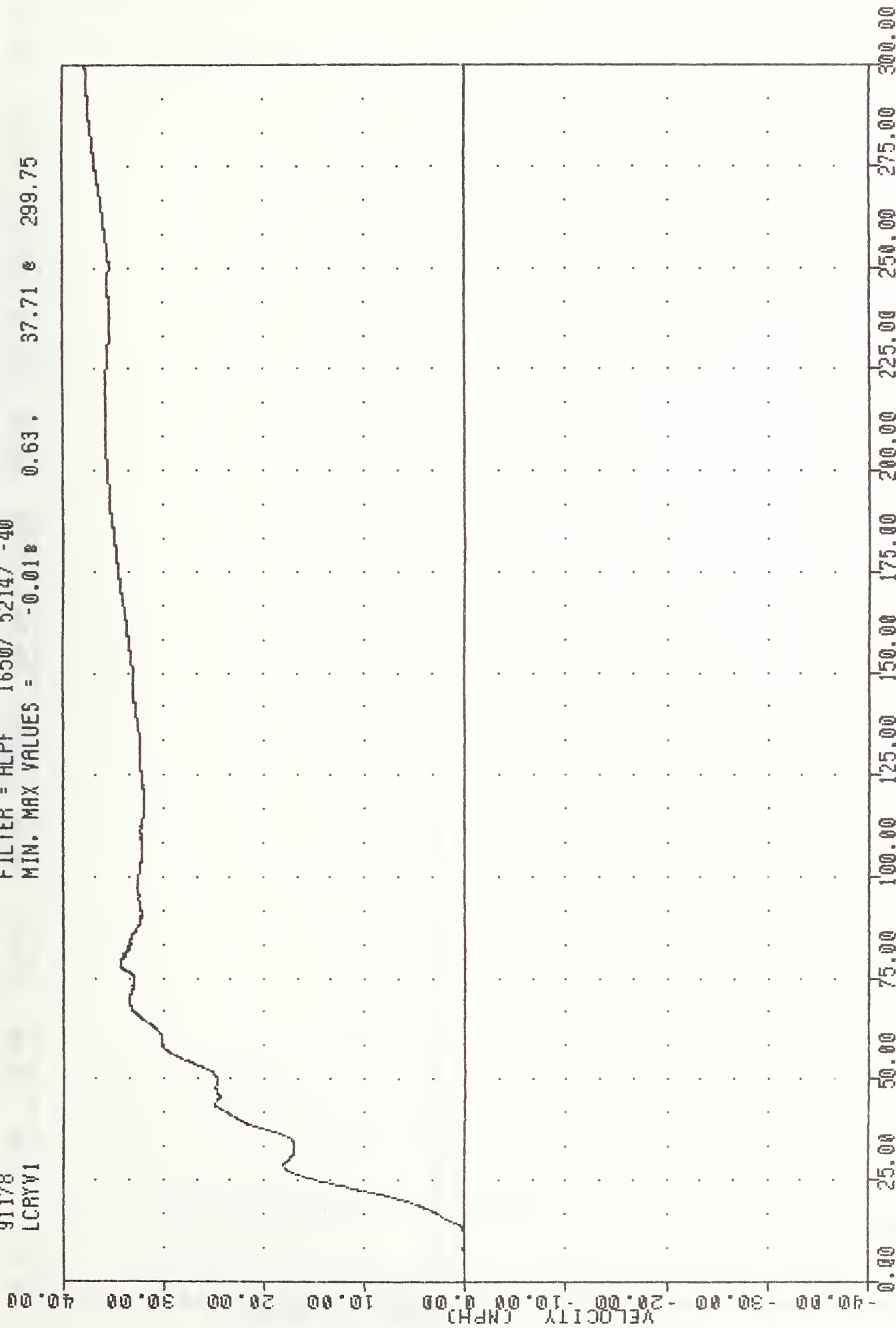
MIN, MAX VALUES = -21.32 31.25, 84.39 23.75



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT CENTER THORAX RIB Y-AXIS REDUNDANT ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
LCRYV1

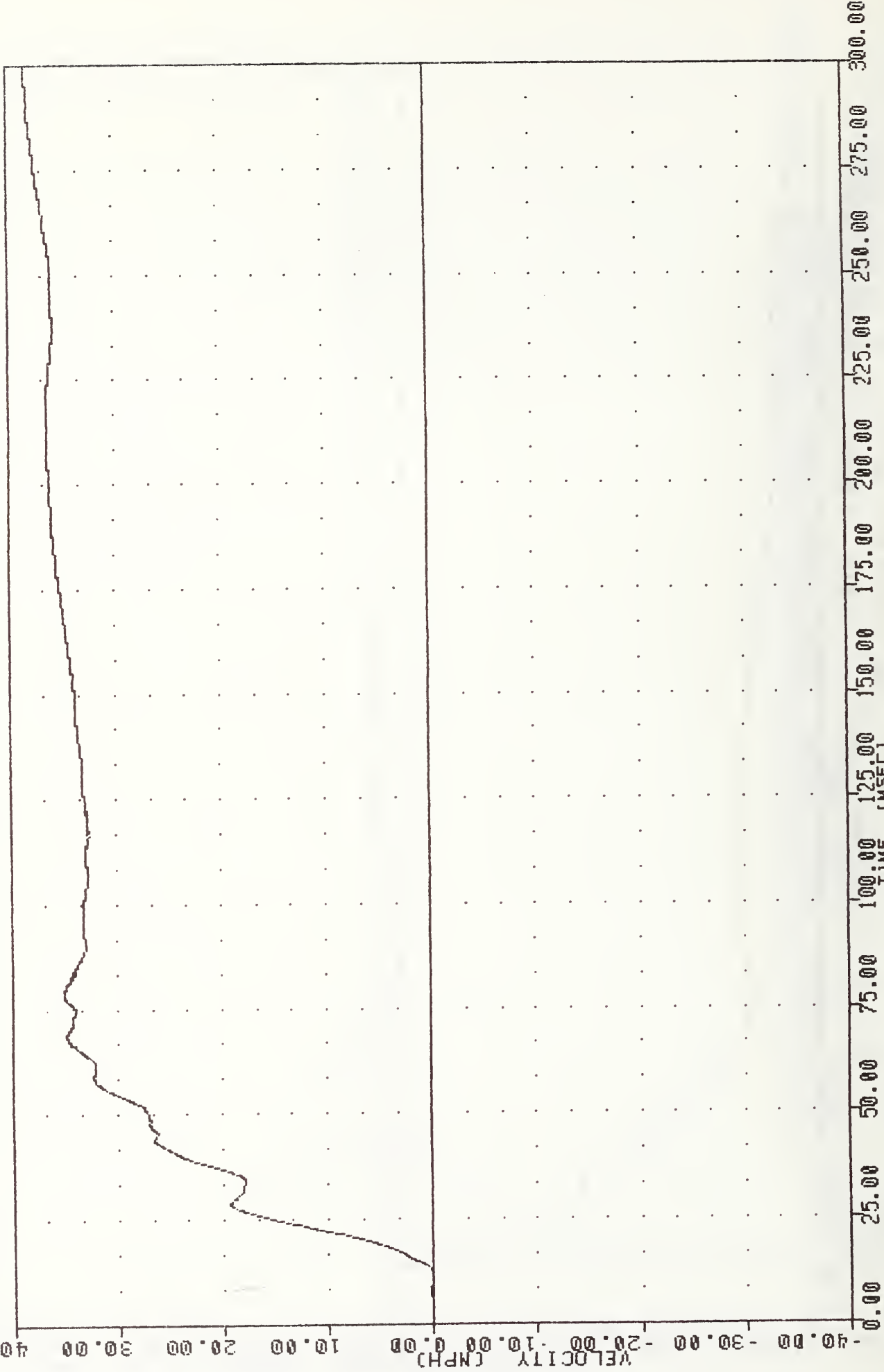
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.018 0.63. 37.71 299.75



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT CENTER THORAX RIB Y-AXIS VELOCITY

VRTC . 910627
LEFT SIDE IMPACT
91178
LCRYVA

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.00 0.00 30.31 300.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT CENTER THORAX AIB Y-AXIS REDUNDANT VELOCITY

VRTC , 910627

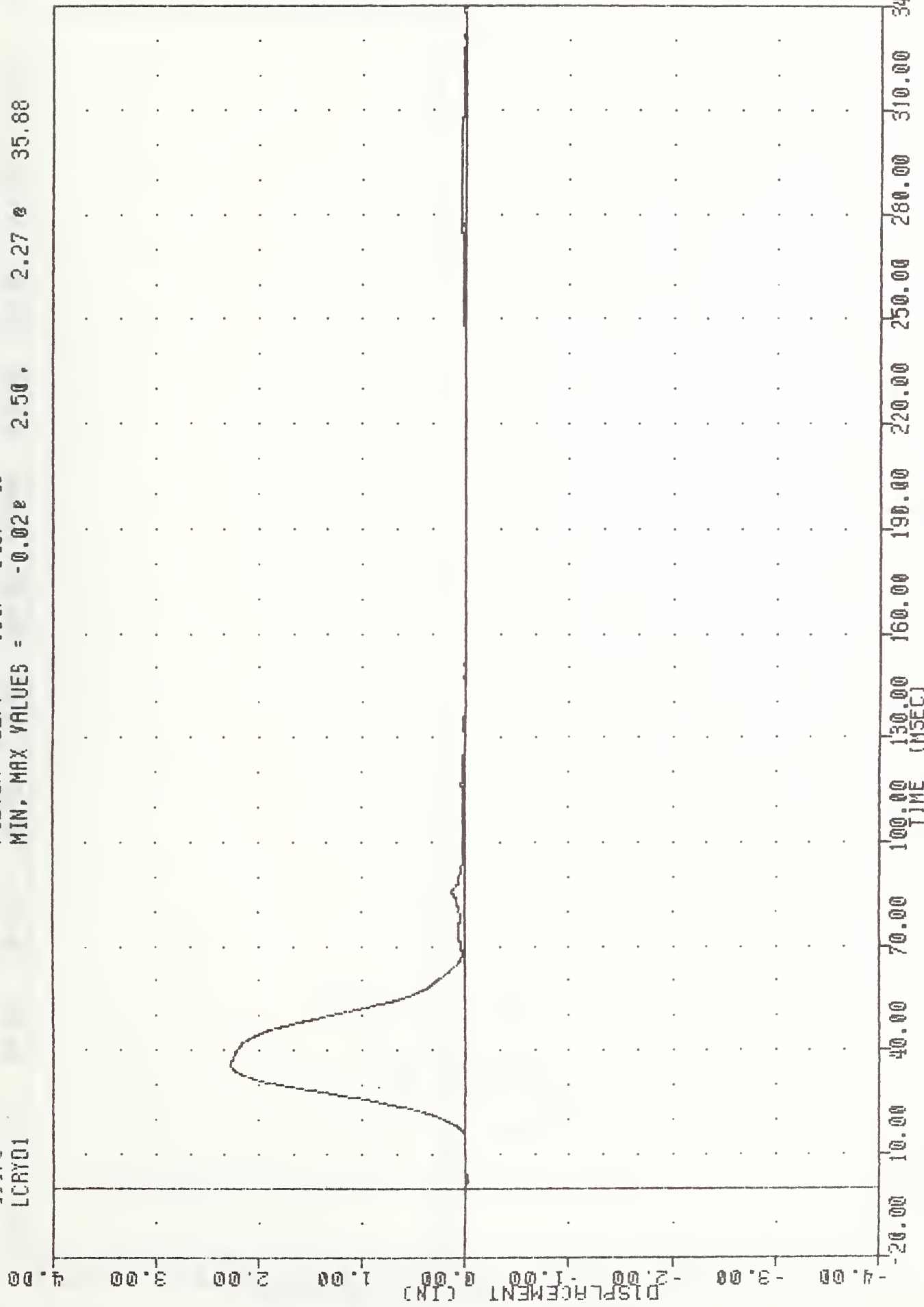
LEFT SIDE IMPACT

91178

LCRY01

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.020 2.50 2.27 35.88



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT CENTER THORAX RIB DISPLACEMENT

VRTC , 910627

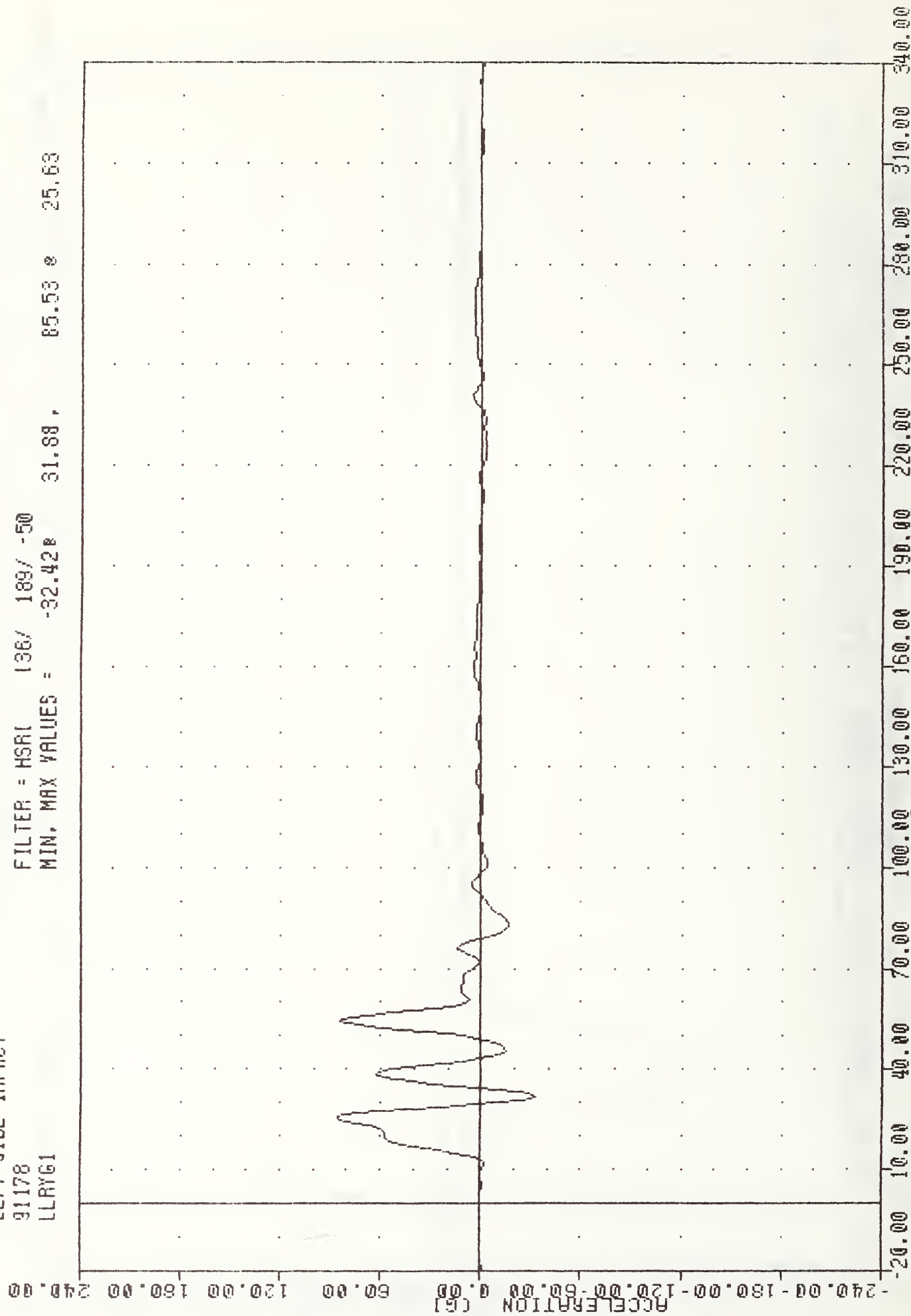
LEFT SIDE IMPACT

91178

LLRY61

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -32.42 31.88, 85.53 25.63



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT LOWER THORAX RIB Y-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

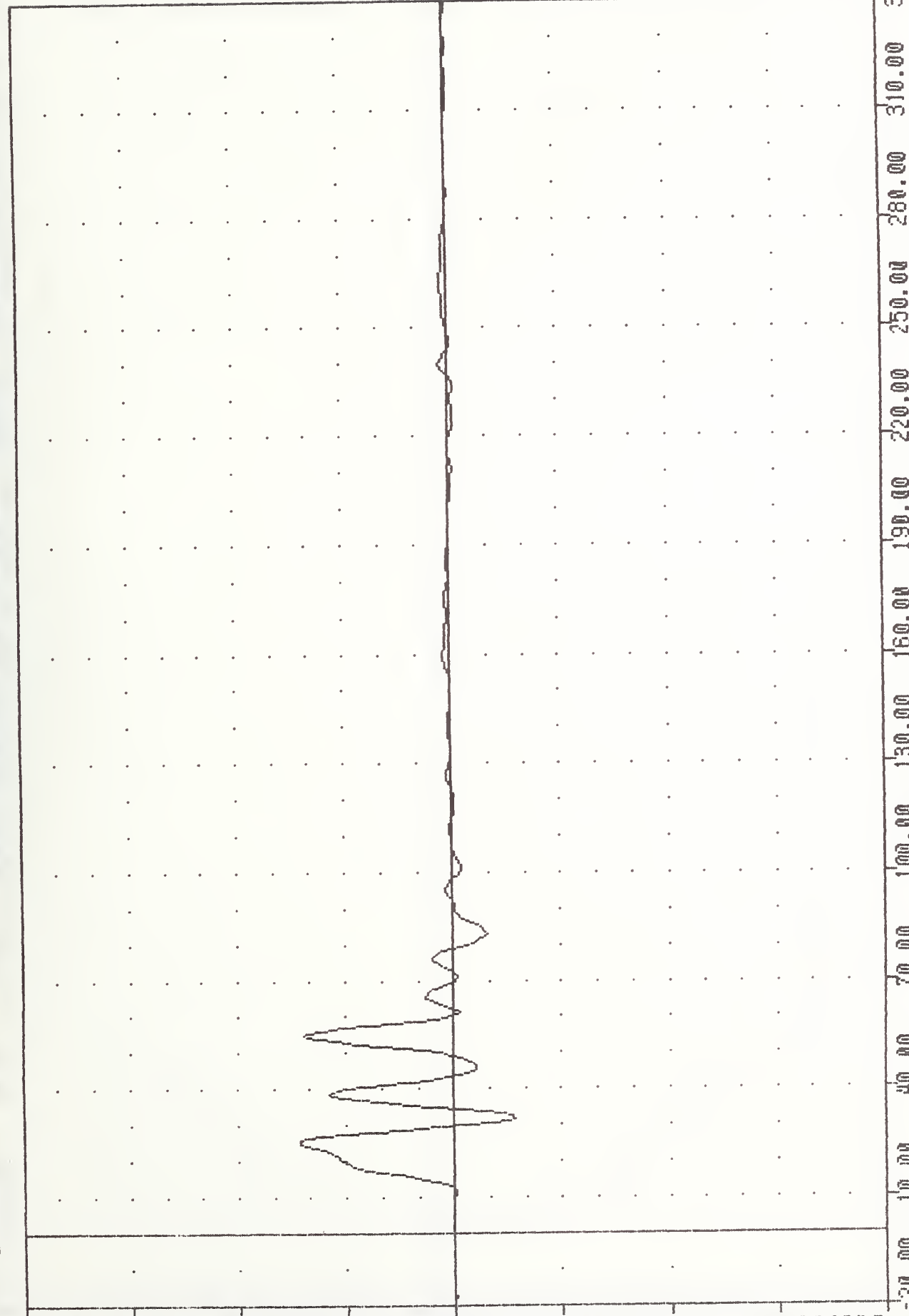
LLRYGA

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -33.80 31.88 ,

85.16 25.63

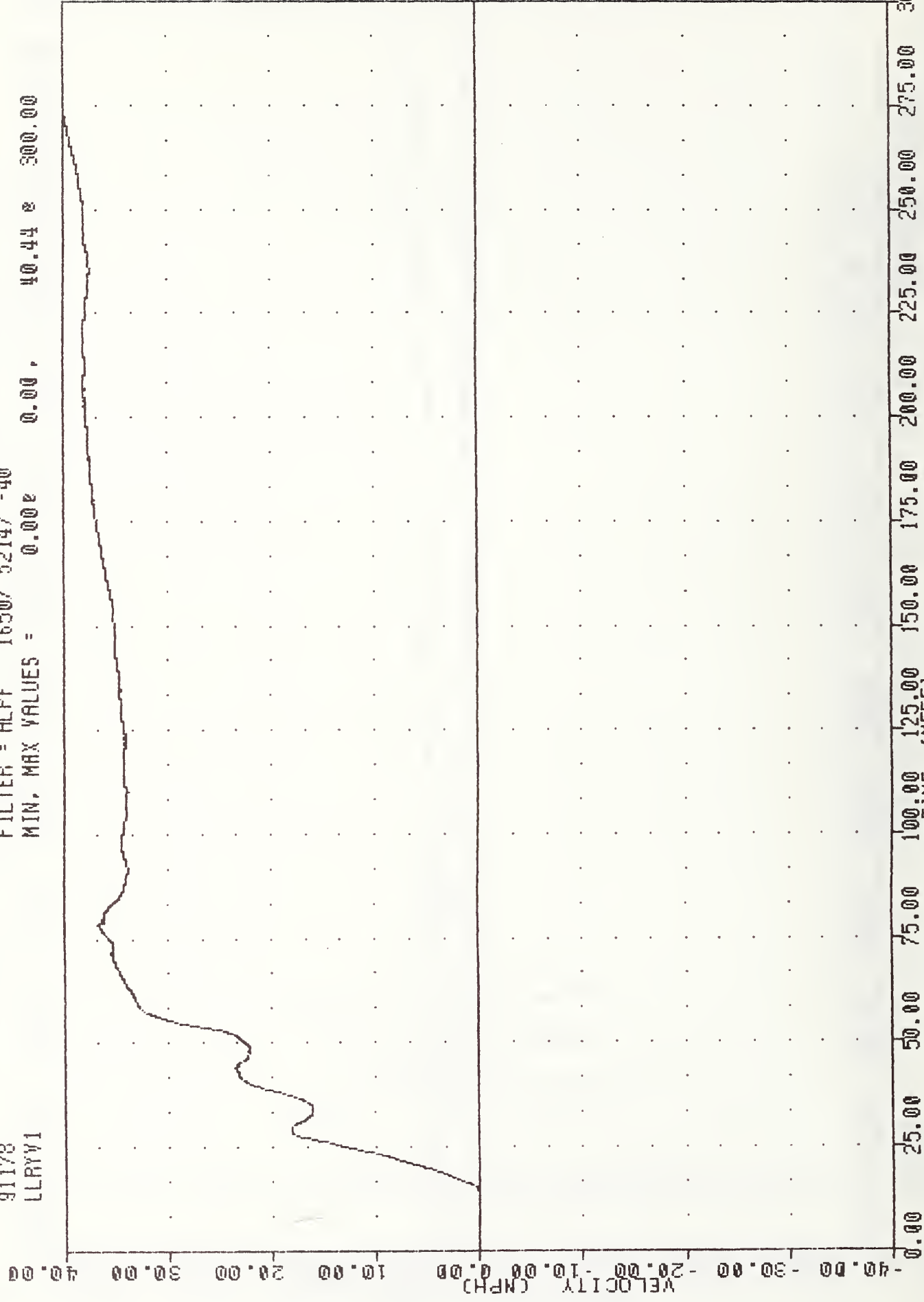
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT LOWER THORAX RIB Y-AXIS REDUNDANT ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
LLRYV1

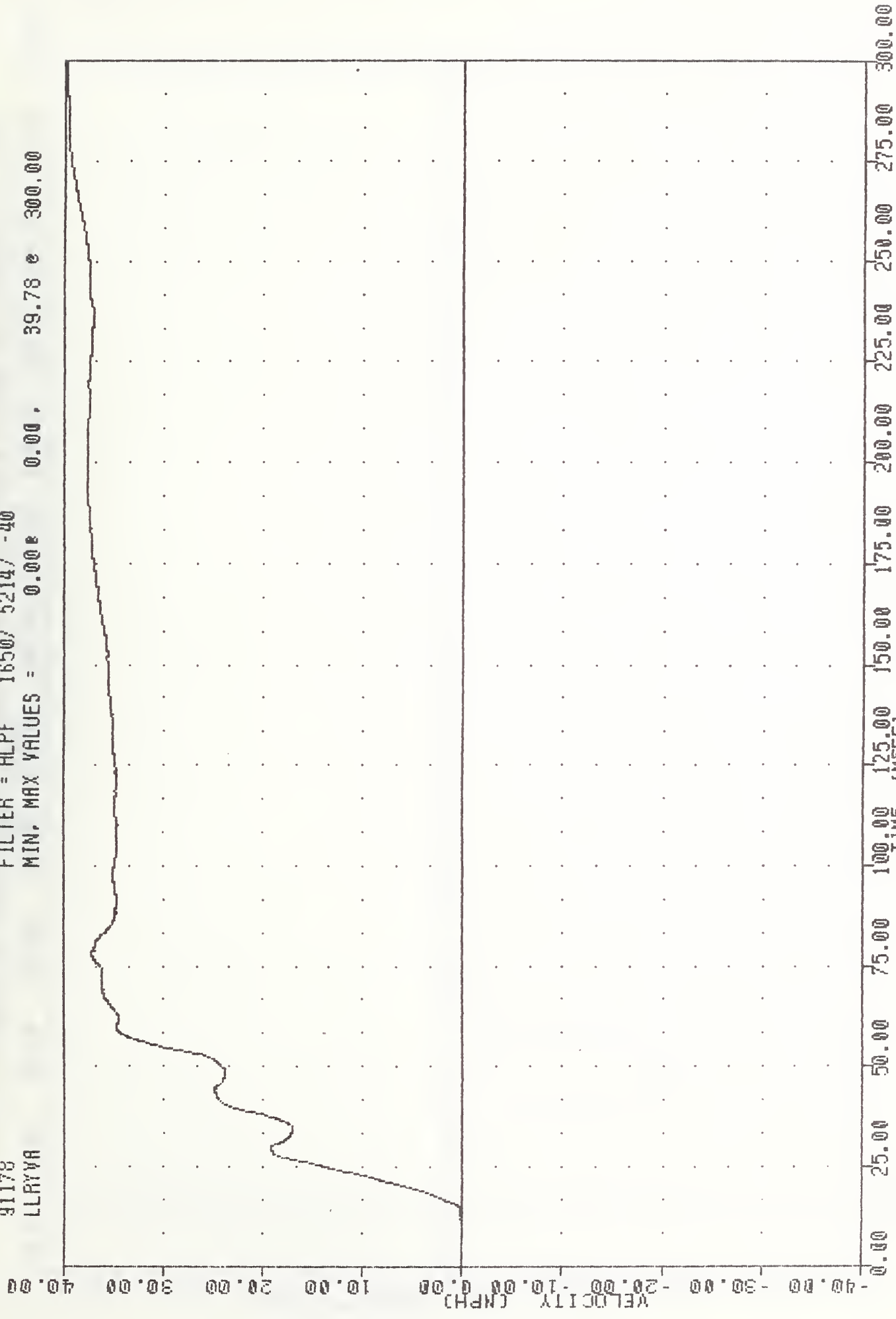
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.00e 40.44 e 300.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT LOWER THORAX RIB Y-AXIS VELOCITY

VRTC , 910627
LEFT SIDE IMPACT
91178
LLRYVA

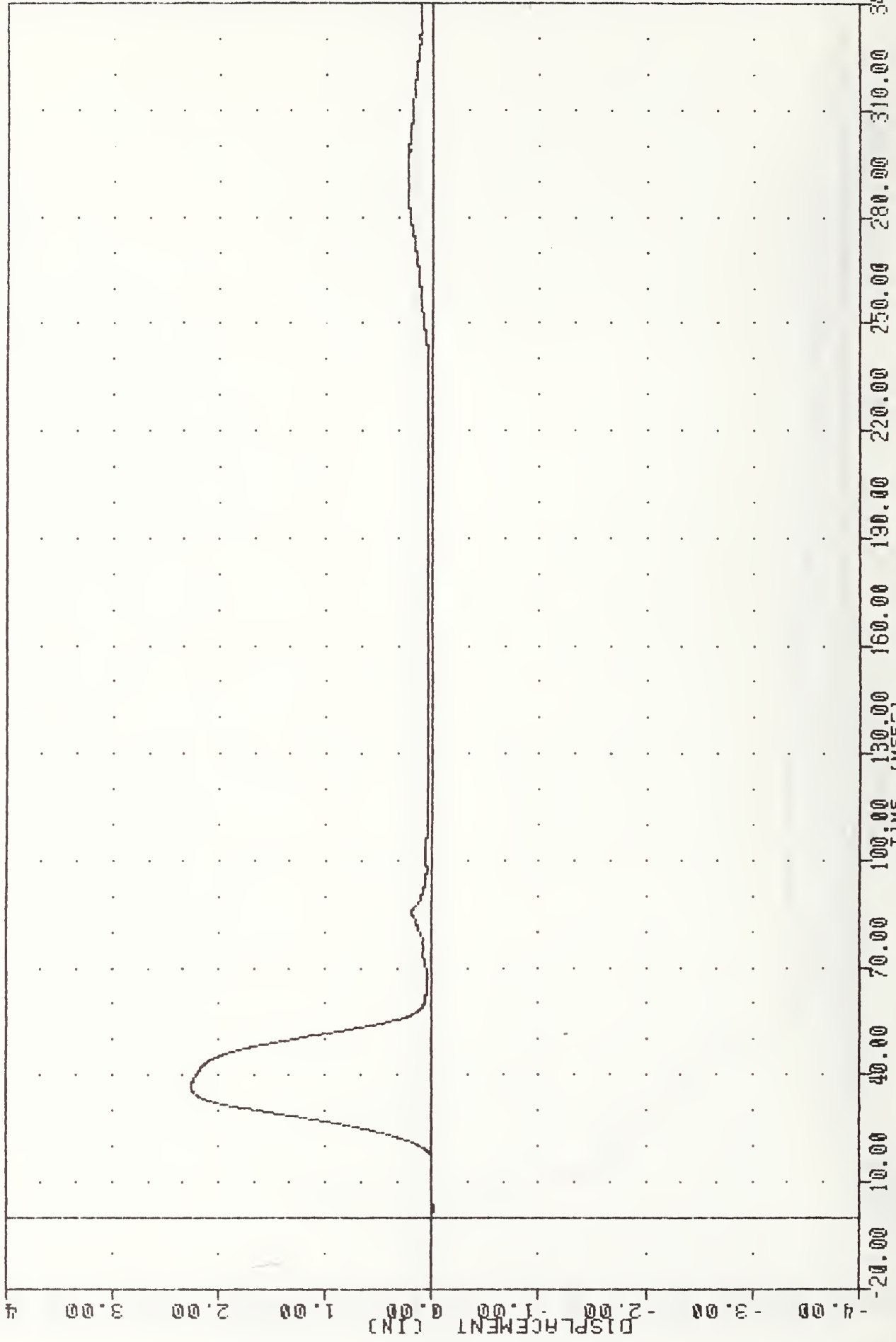
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 0.00 0.00, 39.78 e 300.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT LOWER THORAX RIB Y-AXIS REDUNDANT VELOCITY

VRTC , 910627
LEFT SIDE IMPACT
91178
LLRYD1

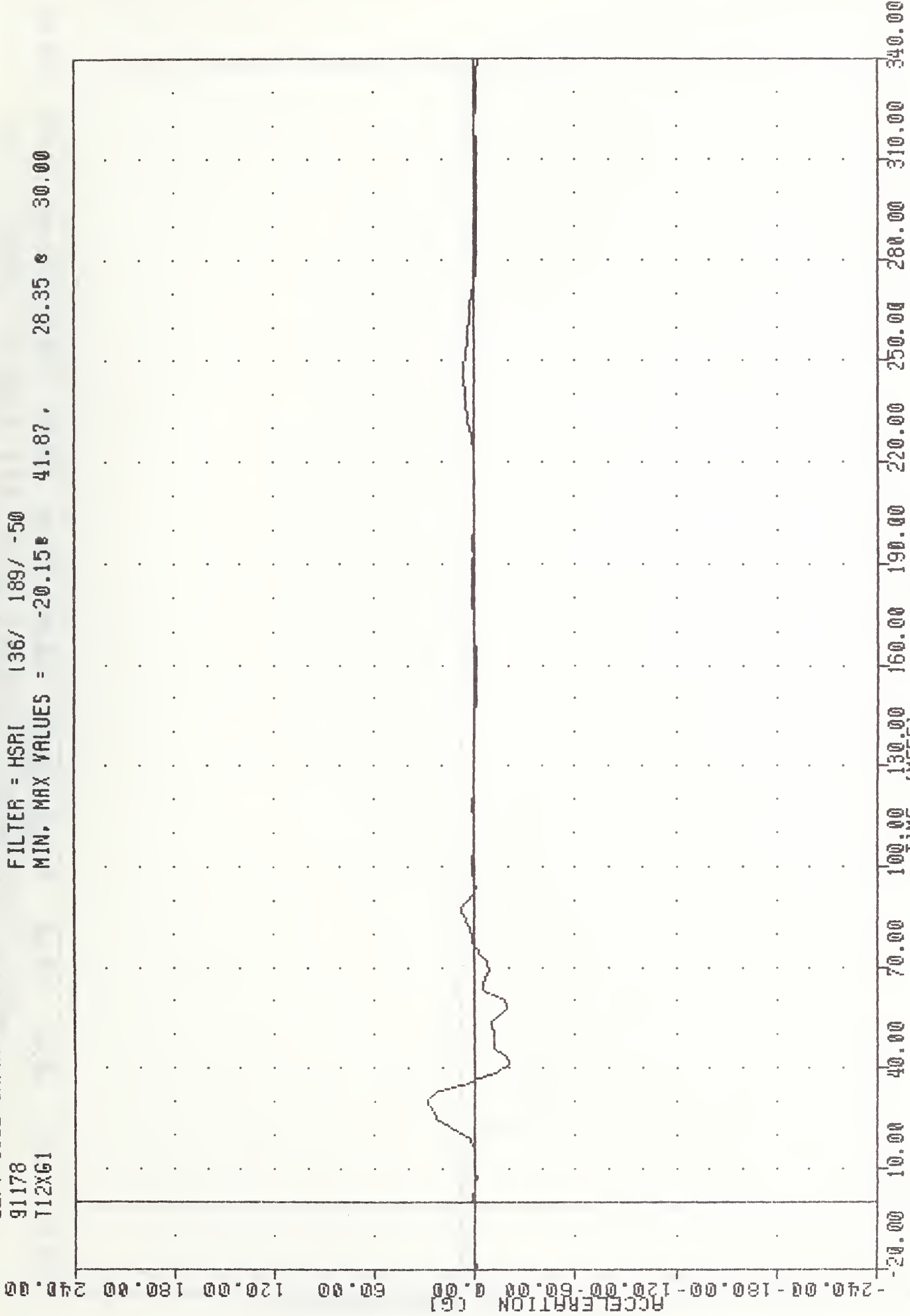
FILTER = BLPF 300/ 949/ -40
MIN. MAX VALUES = -0.020 2.50 2.26 36.33



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSW
DRIVER LEFT LOWER THORAX RIB DISPLACEMENT

VRTC , 910627
LEFT SIDE IMPACT
91178
T12XG1

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -20.15 41.87 , 28.35 30.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LOWER SPINE X-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

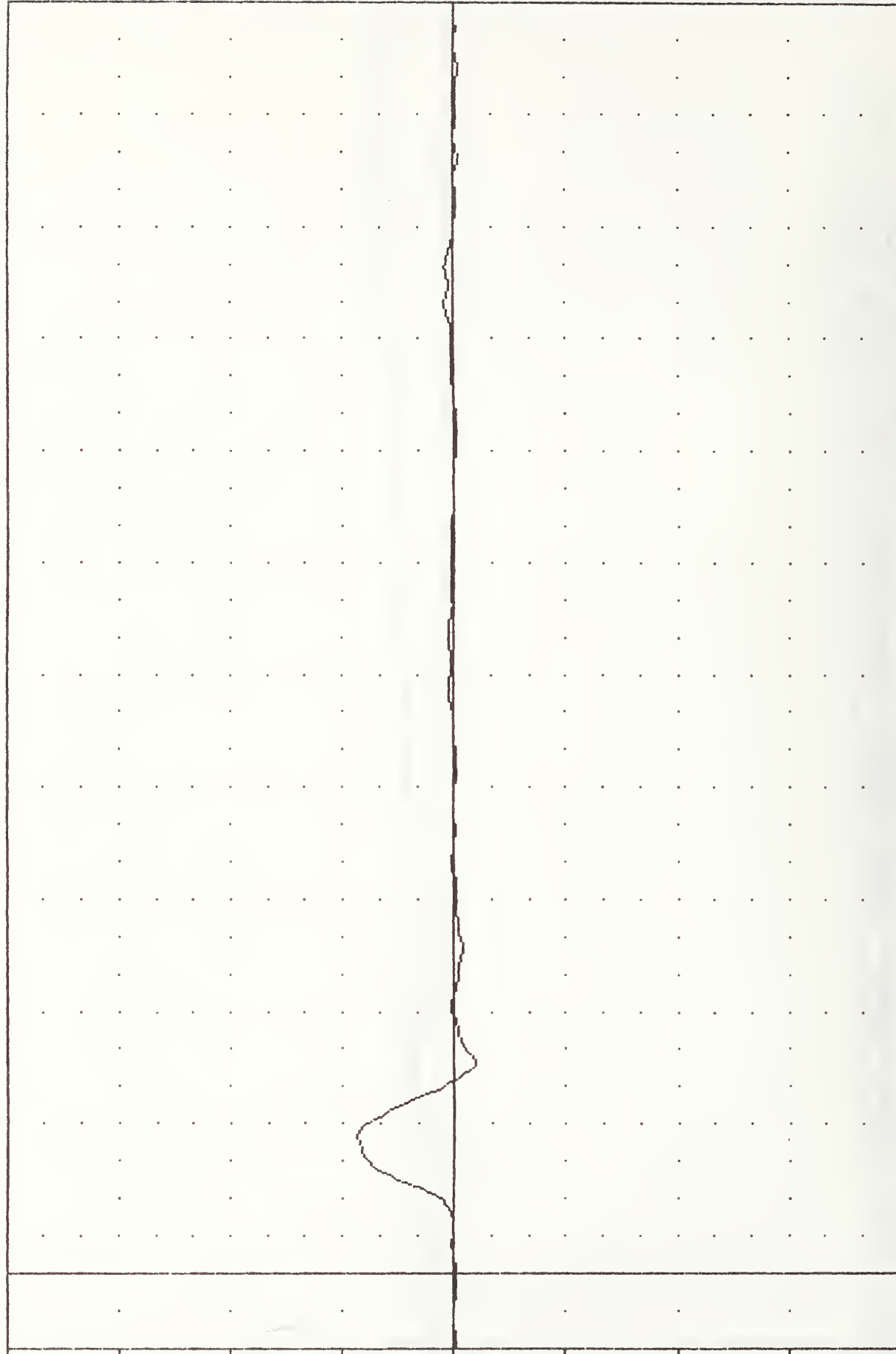
91178

T12Y61

FILTER = HSRL 136/ 189/ -50

MIN. MAX VALUES = -10.96 56.25 51.91 36.25

ACCELERATION (G)



-

-240.00

-180.00

-120.00

-60.00

0.00

60.00

120.00

180.00

240.00

300.00

340.00

TIME (MSEC)

0.00

10.00

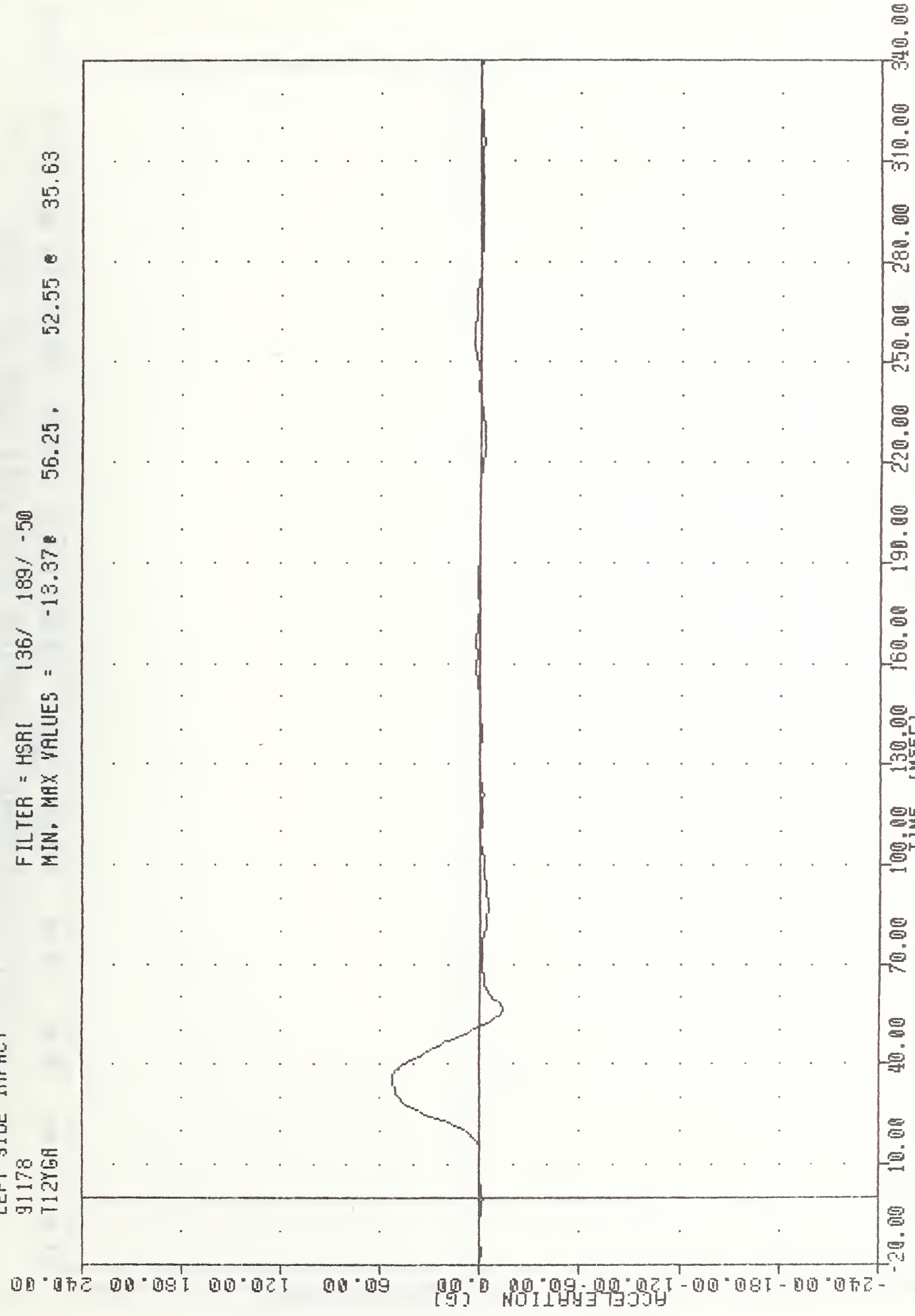
20.00

30.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LOWER SPINE Y-AXIS ACCELERATION

VRTC , 910627
 LEFT SIDE IMPACT
 91178
 T12YGA

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -13.37 56.25, 52.55 35.63



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
 DRIVER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

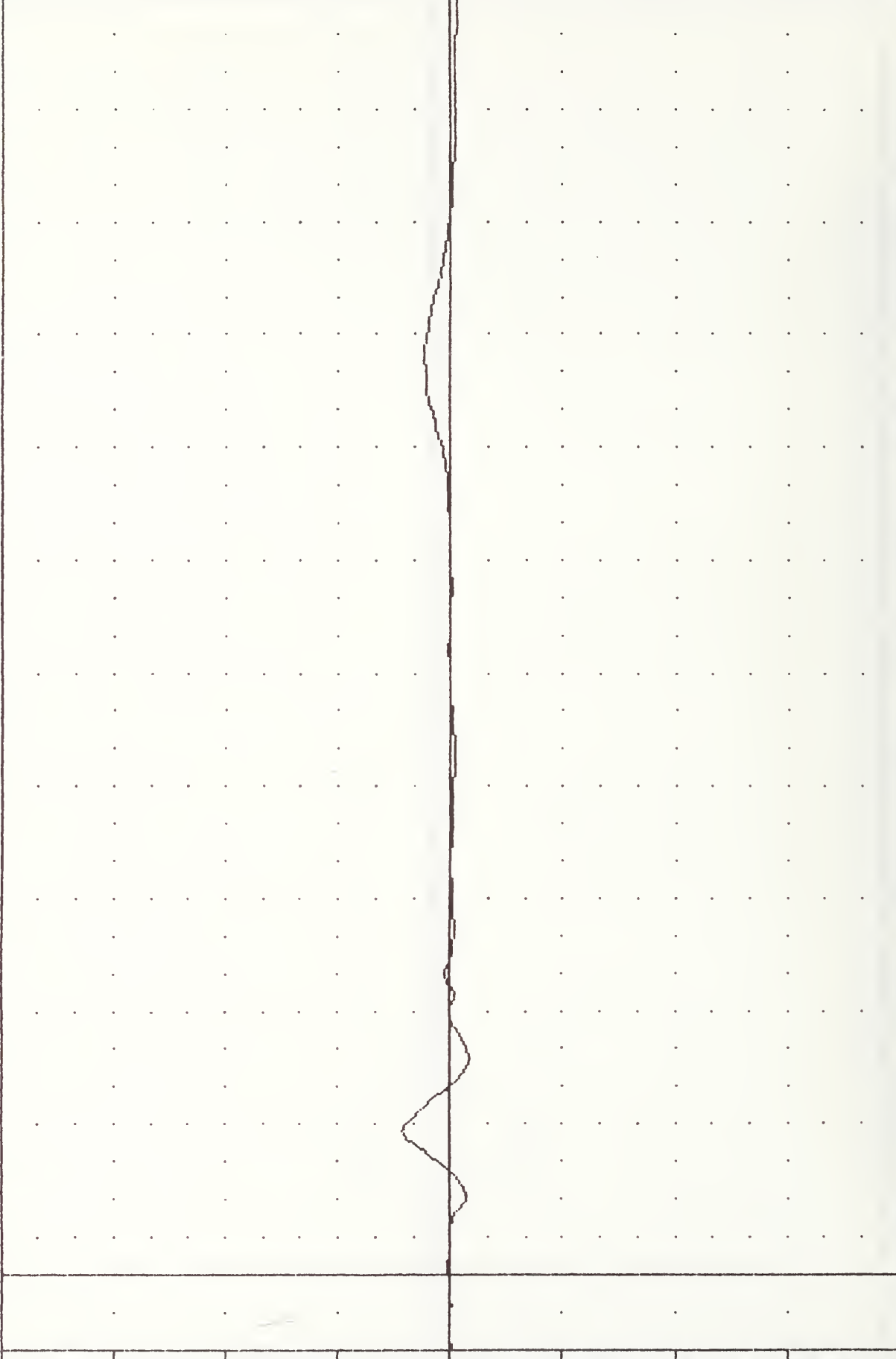
712ZG1

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -9.71e 57.50 ,

25.27 e 38.13

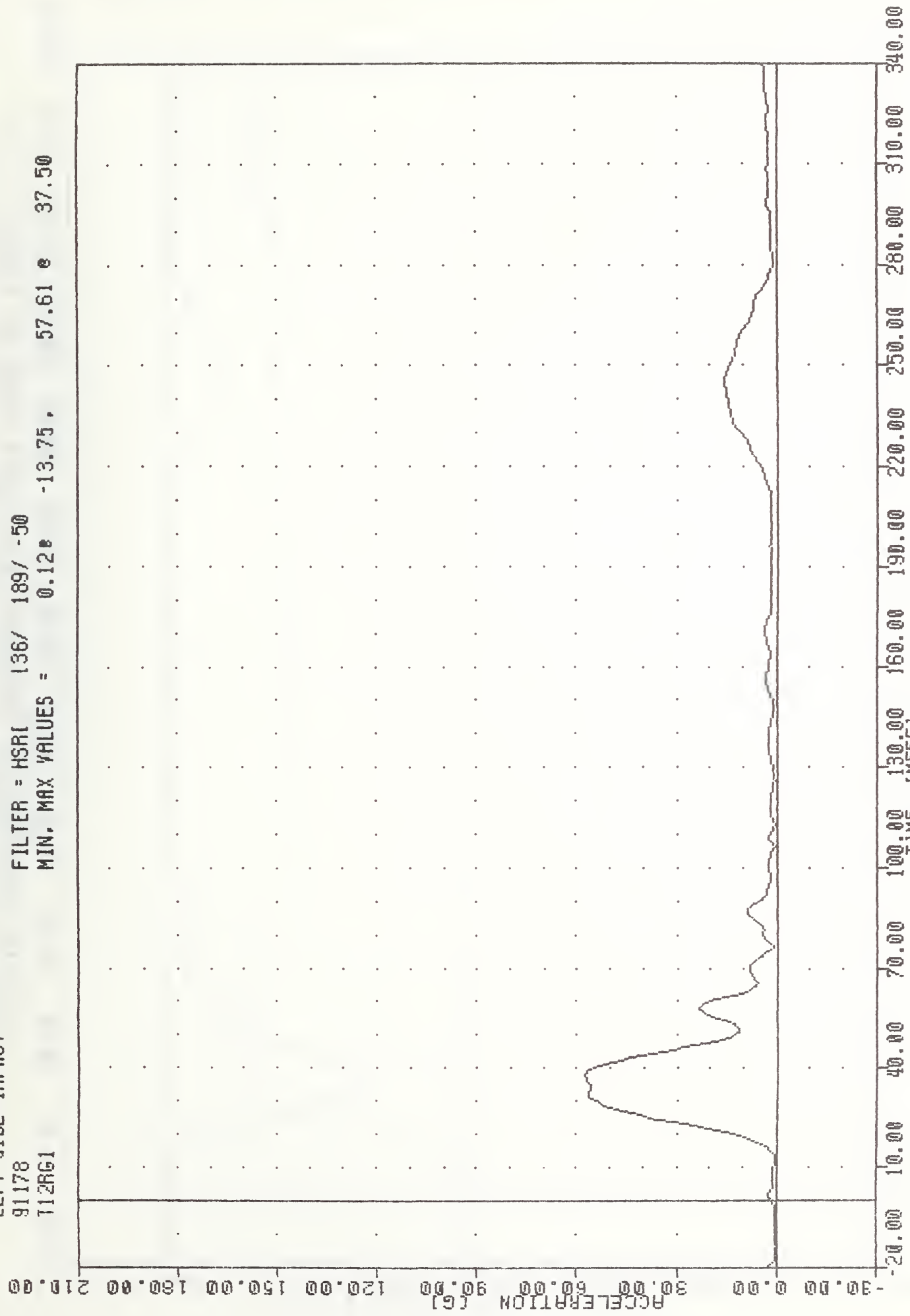
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LOWER SPINE Z-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
T12RG1

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = 0.12e -13.75, 57.61 e 37.50



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LOWER SPINE RESULTANT ACCELERATION

VRIC , 910627

LEFT SIDE IMPACT

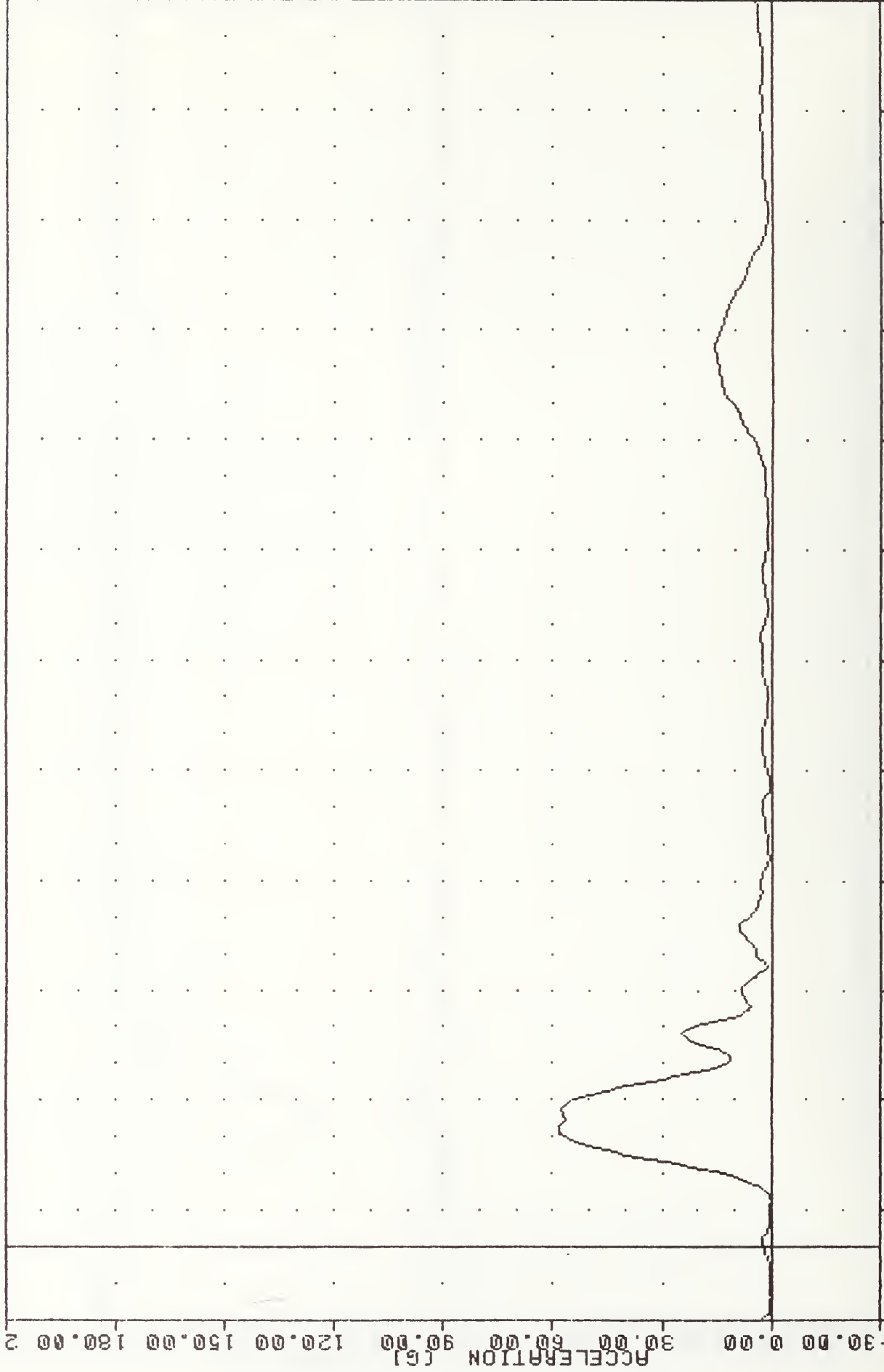
91178

T12RGA

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = 0.10e 11.88, 58.55 e 31.25

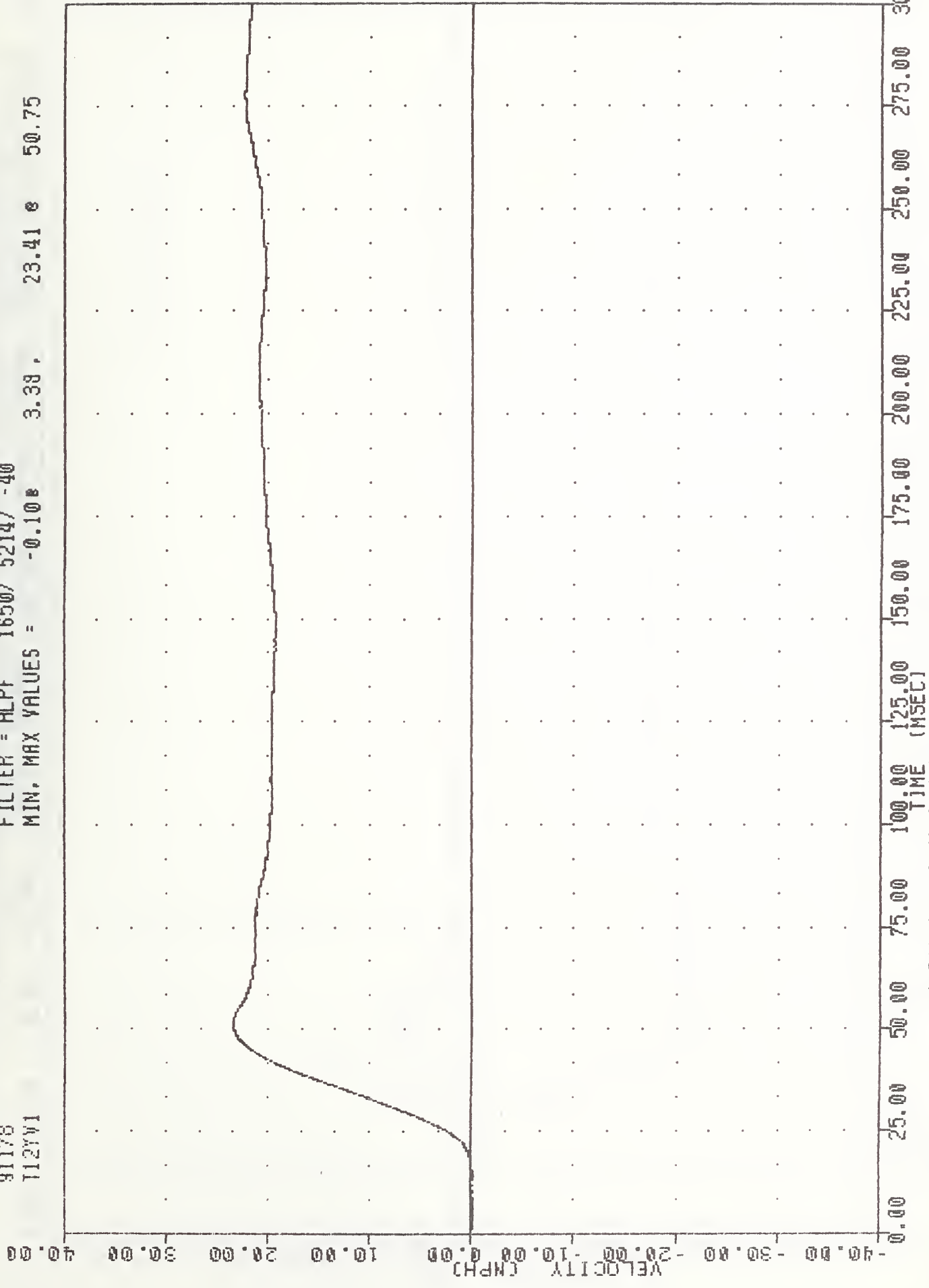
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LOWER SPINE REDUNDANT RESULTANT ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
T12YV1

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.108 3.38 , 23.41 e 50.75



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LOWER SPINE Y-AXIS VELOCITY

VRTC , 910627

LEFT SIDE IMPACT

91178

T12YVA

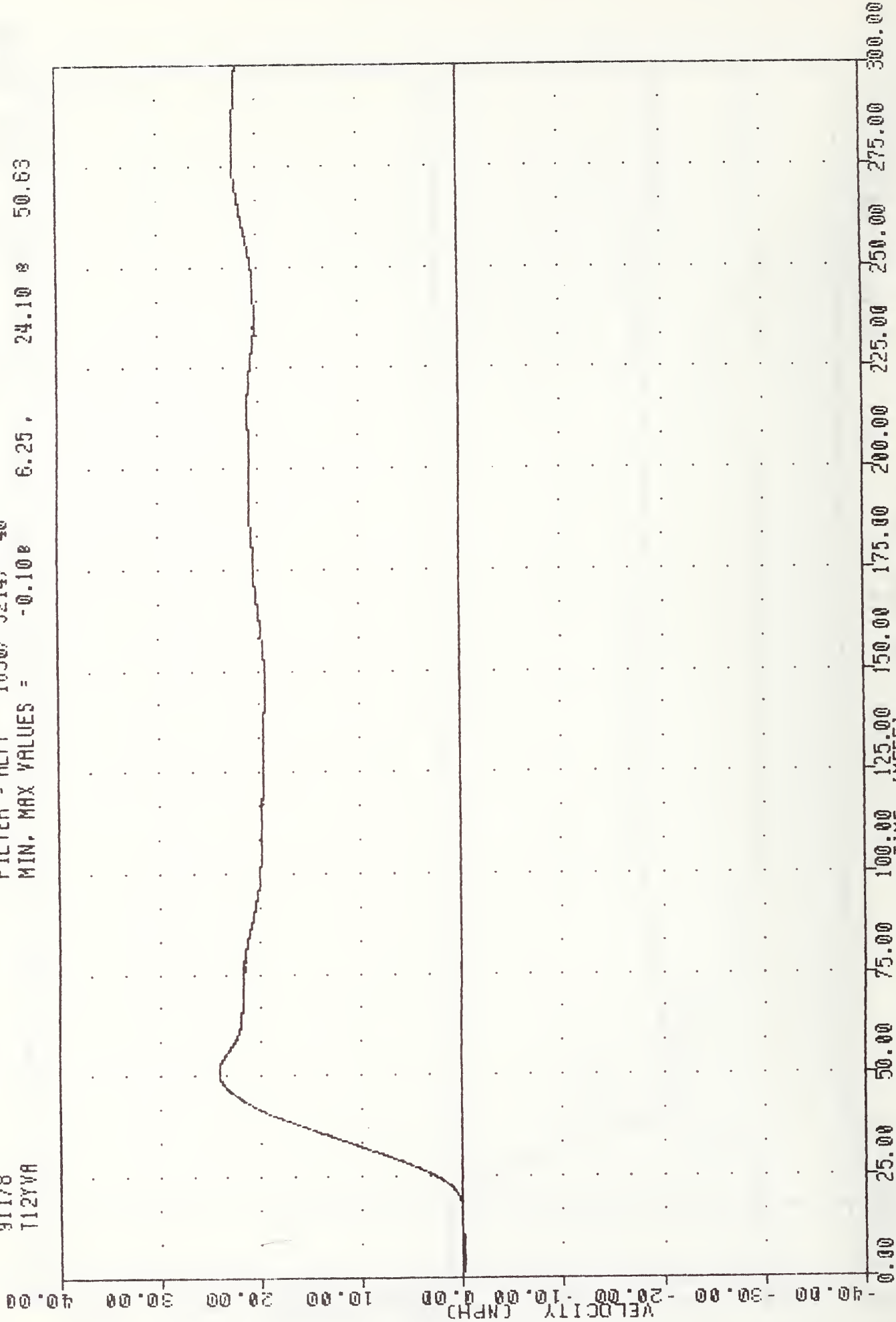
FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -0.100

6.25 ,

24.10 *

50.63



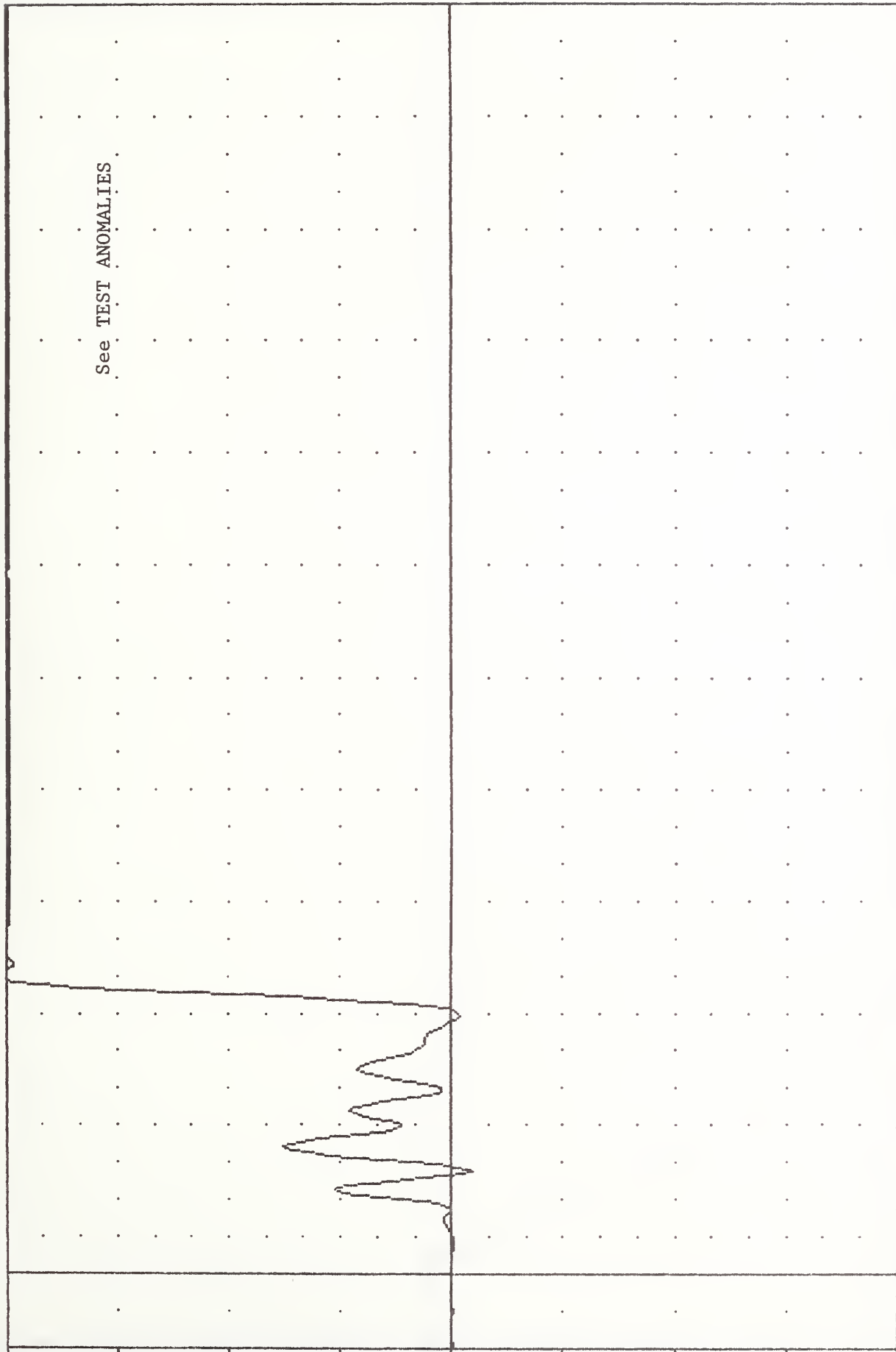
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

VRTC , 910627
 LEFT SIDE IMPACT
 91178
 LUAYG1

FILTER = HSR(136/ 189/ -50
 MIN. MAX VALUES = -10.55 27.50 .

250.31 79.38

ACCELERATION (G)



TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
 DRIVER LEFT UPPER ABDOMEN RIB Y-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

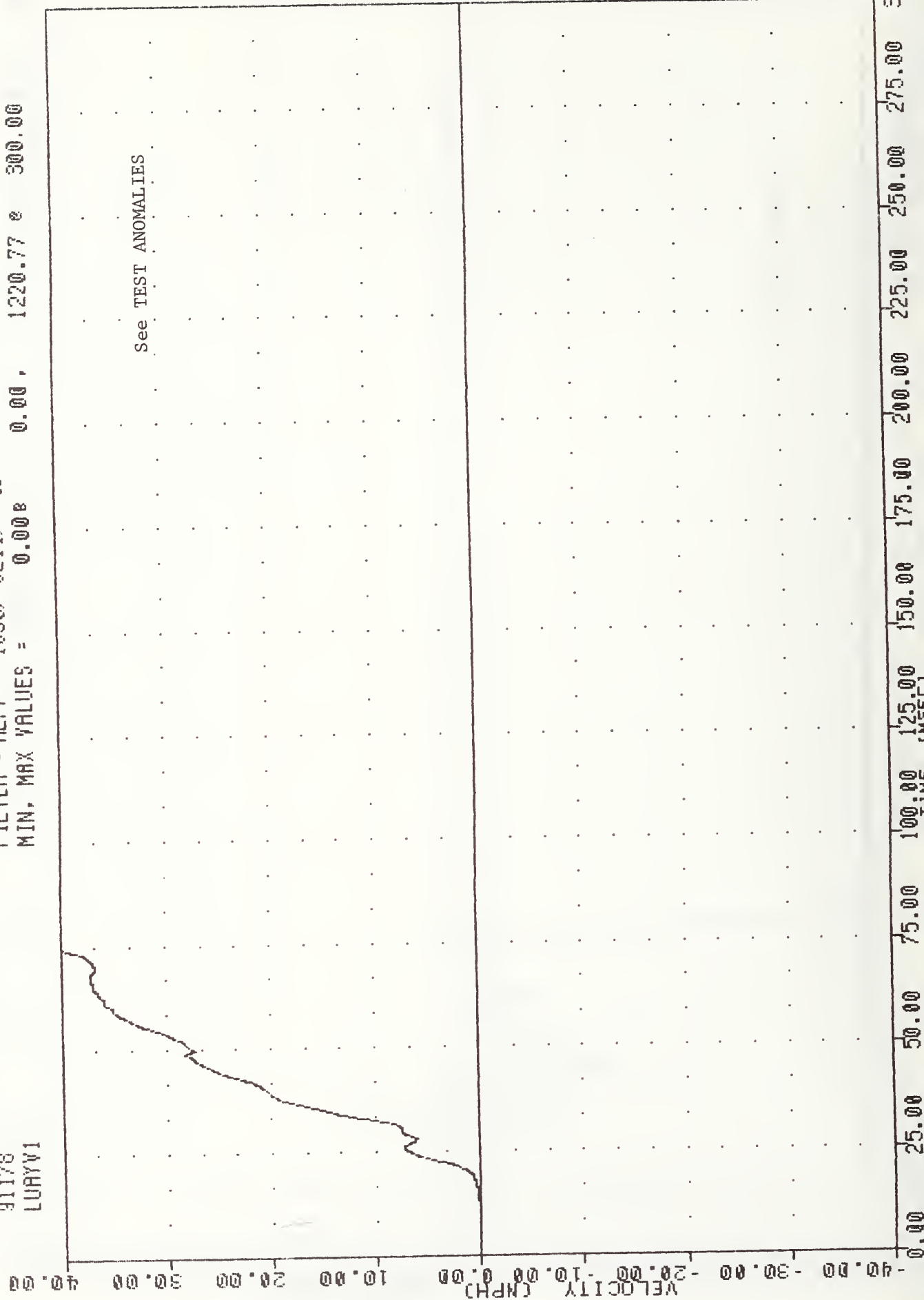
91178

LURVV1

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = 0.008

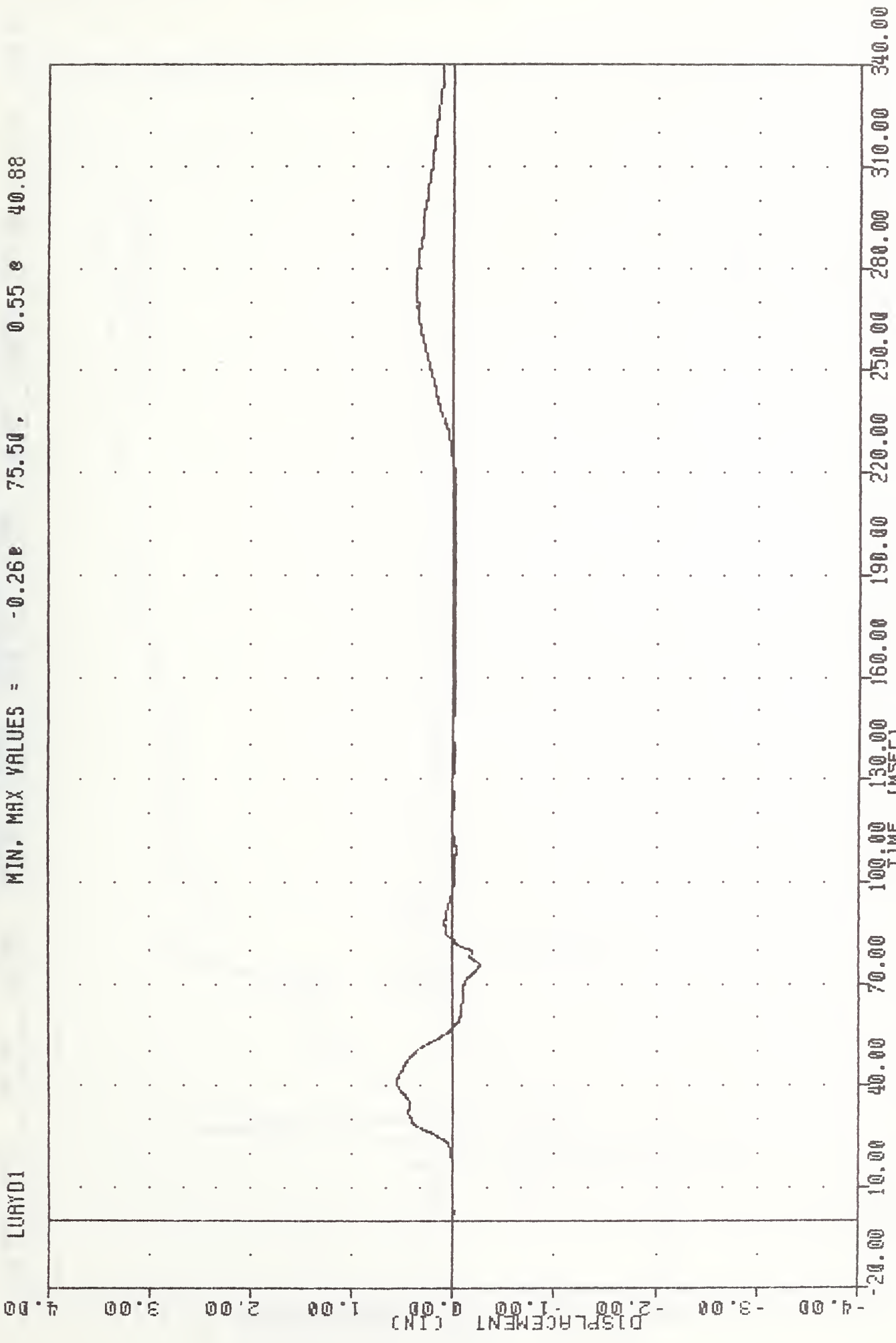
0.00 , 1220.77 @ 300.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT UPPER ABDOMEN RIB Y-AXIS VELOCITY

VRTC , 910627
 LEFT SIDE IMPACT
 91178
 LWAYD1

FILTER = BLPF 300/ 949/ -40
 MIN. MAX VALUES = -0.26 75.50 0.55 40.88



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
 DRIVER LEFT UPPER ABDOMEN RIB DISPLACEMENT

VRTC , 910627

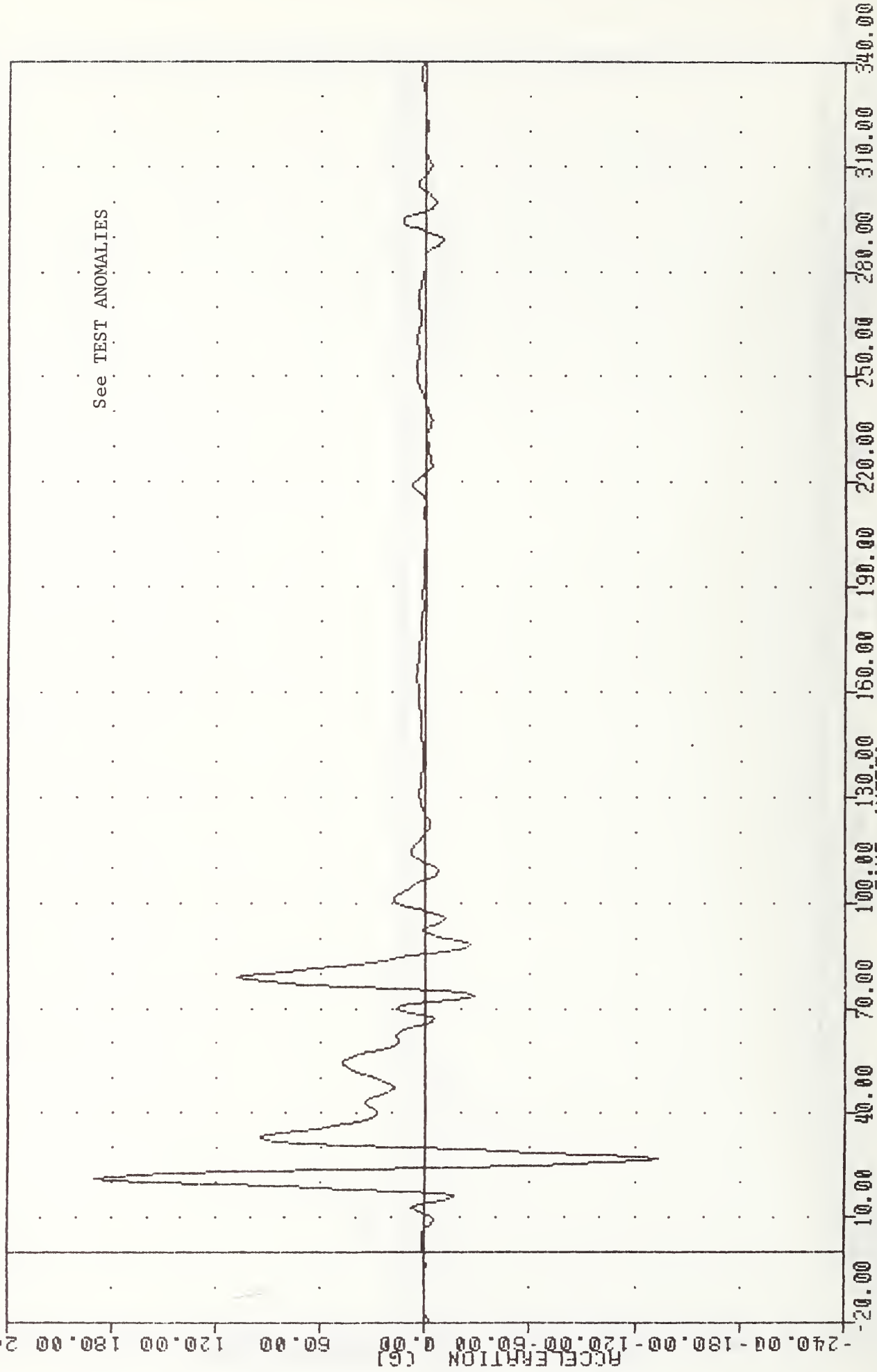
LEFT SIDE IMPACT

91178

LLAYG1

FILTER = HSR1 136/ 189/ -50

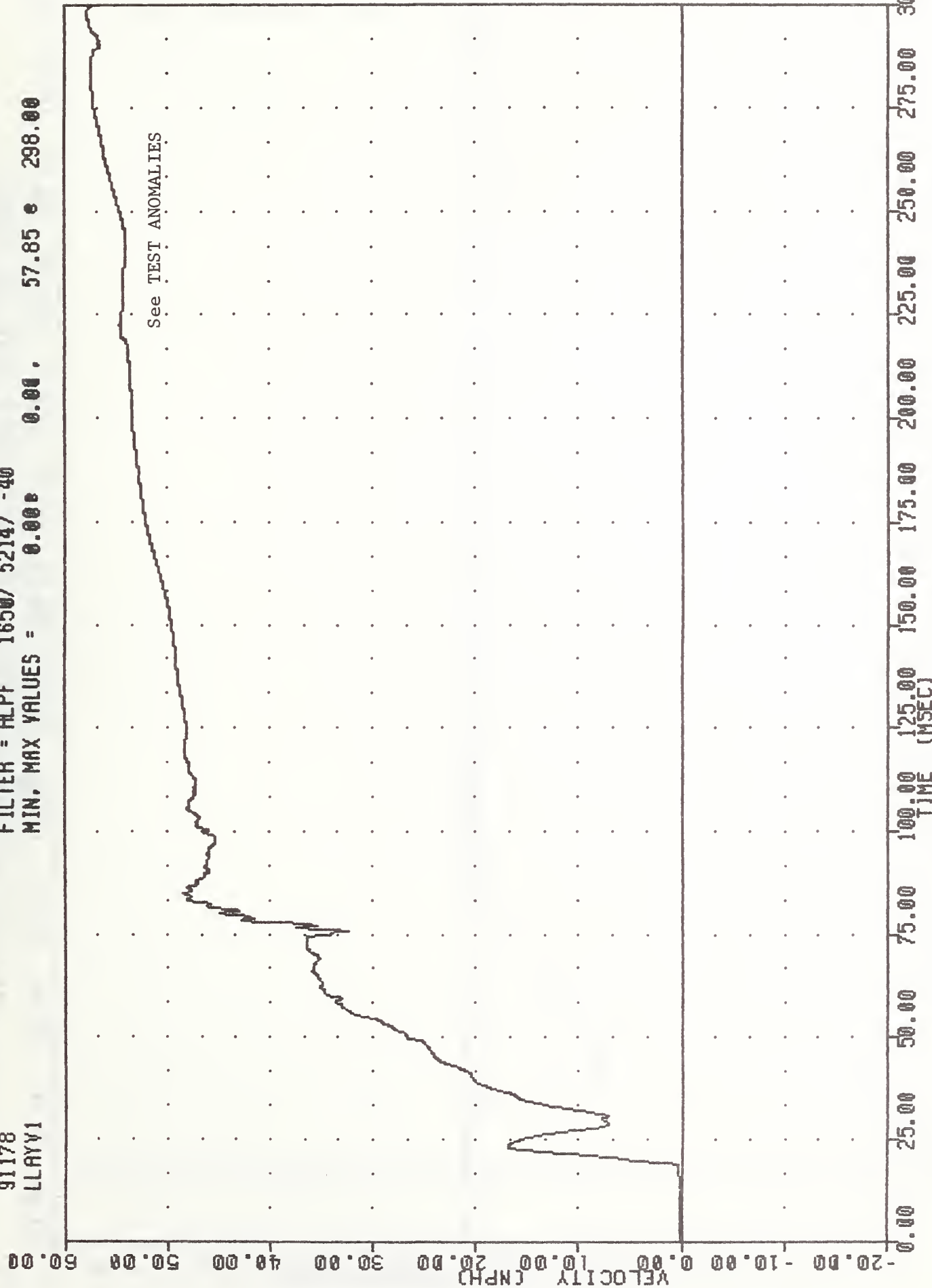
MIN, MAX VALUES = -132.96 26.87, 190.53 21.25



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT LOWER ABDOMEN RIB Y-AXIS ACCELERATION

WRTC , 910627
LEFT SIDE IMPACT
91178
LLAYV1

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.00 57.85 298.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT LOWER ABDOMEN RIB Y-AXIS VELOCITY

VRTC , 910627

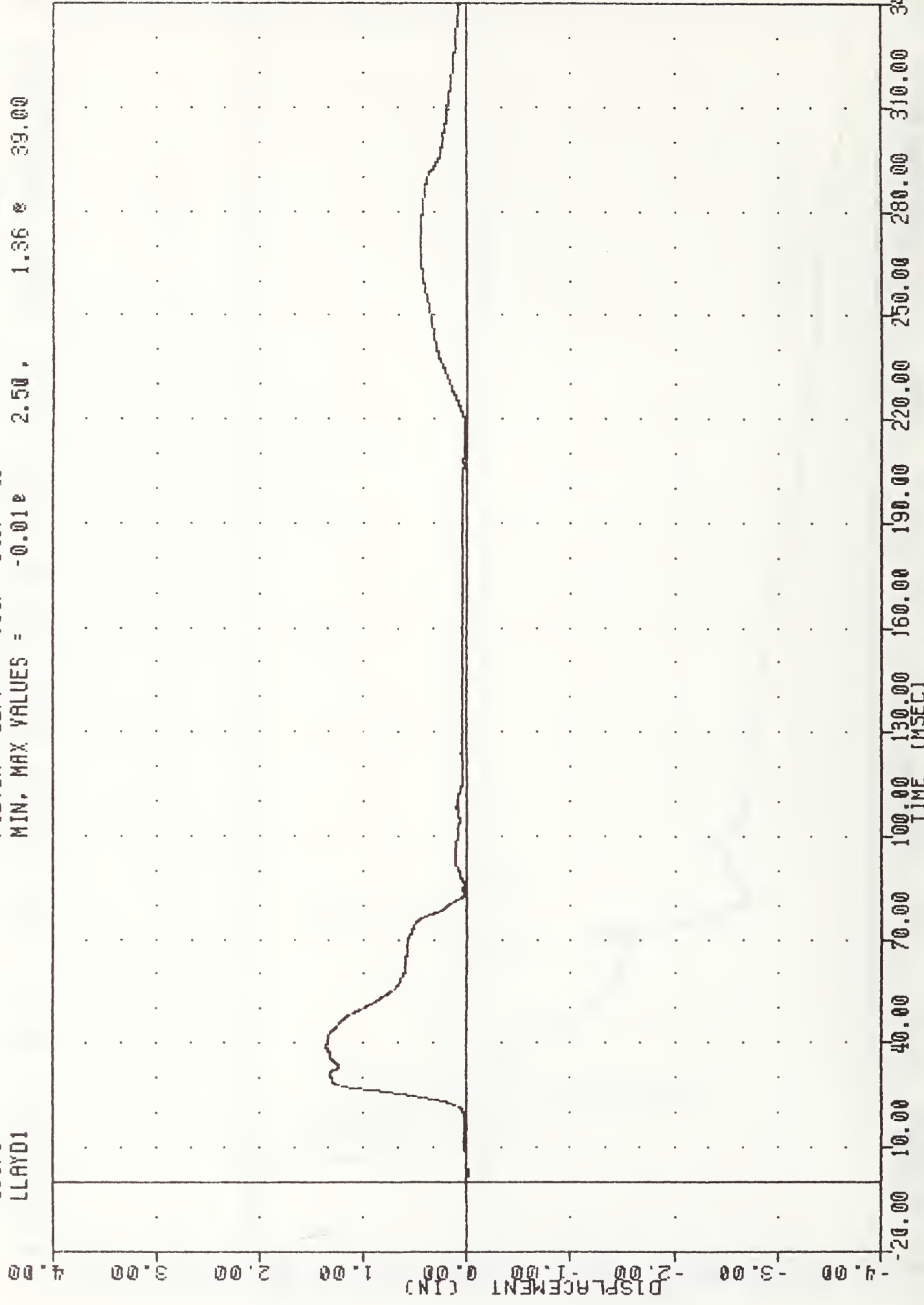
LEFT SIDE IMPACT

91178

LLAYD1

FILTER = BLPF 300/ 949/ -40

MIN. MAX VALUES = -0.01e 2.50 , 1.36 e 39.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER LEFT LOWER ABDOMEN RIB DISPLACEMENT

NRTC 910627

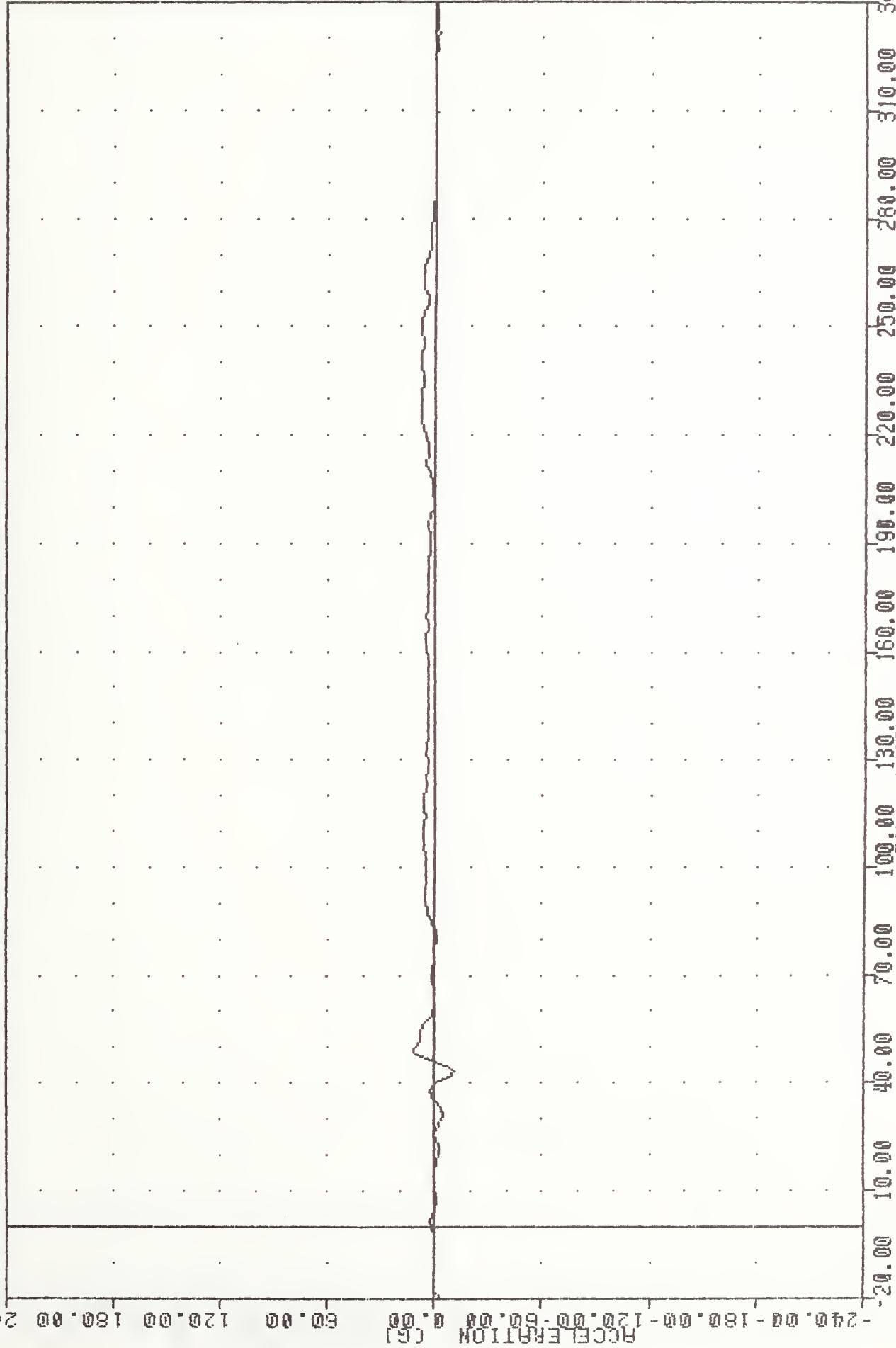
LEFT SIDE IMPACT

91178

PEVXG1

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -10.83e 43.13, 11.41 e 49.37



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER PELVIS X-AXIS ACCELERATION

VRIC , 910627

LEFT SIDE IMPACT

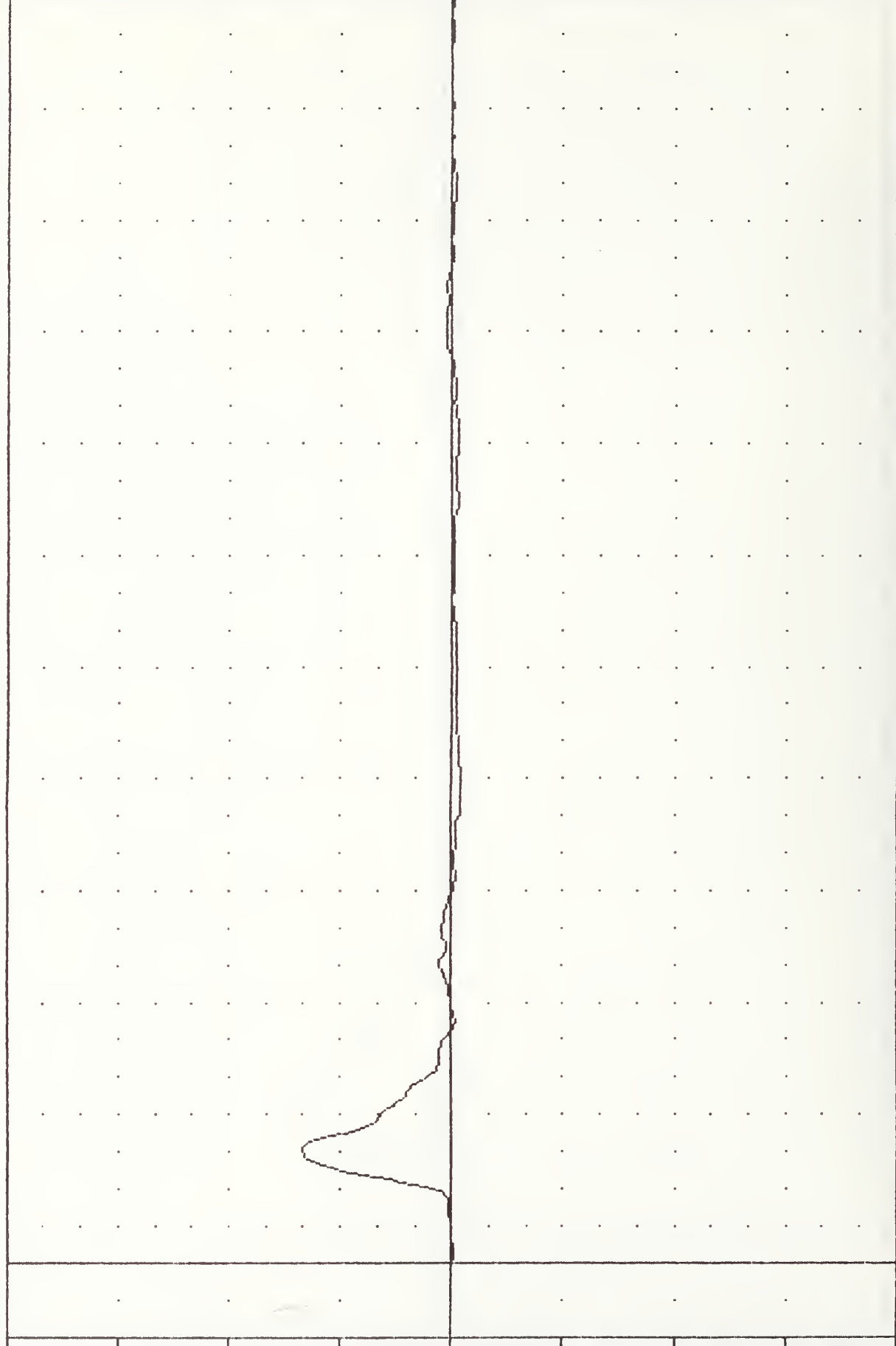
91178

PEW61

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -5.38 122.50, 80.52 30.62

ACCELERATION (G)



TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER PELVIS Y-AXIS ACCELERATION

WRTC , 910627

LEFT SIDE IMPACT

91178

PEVZG1

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -6.00 39.38 ,

9.75 e 238.75

240.00

180.00

120.00

60.00

0.00

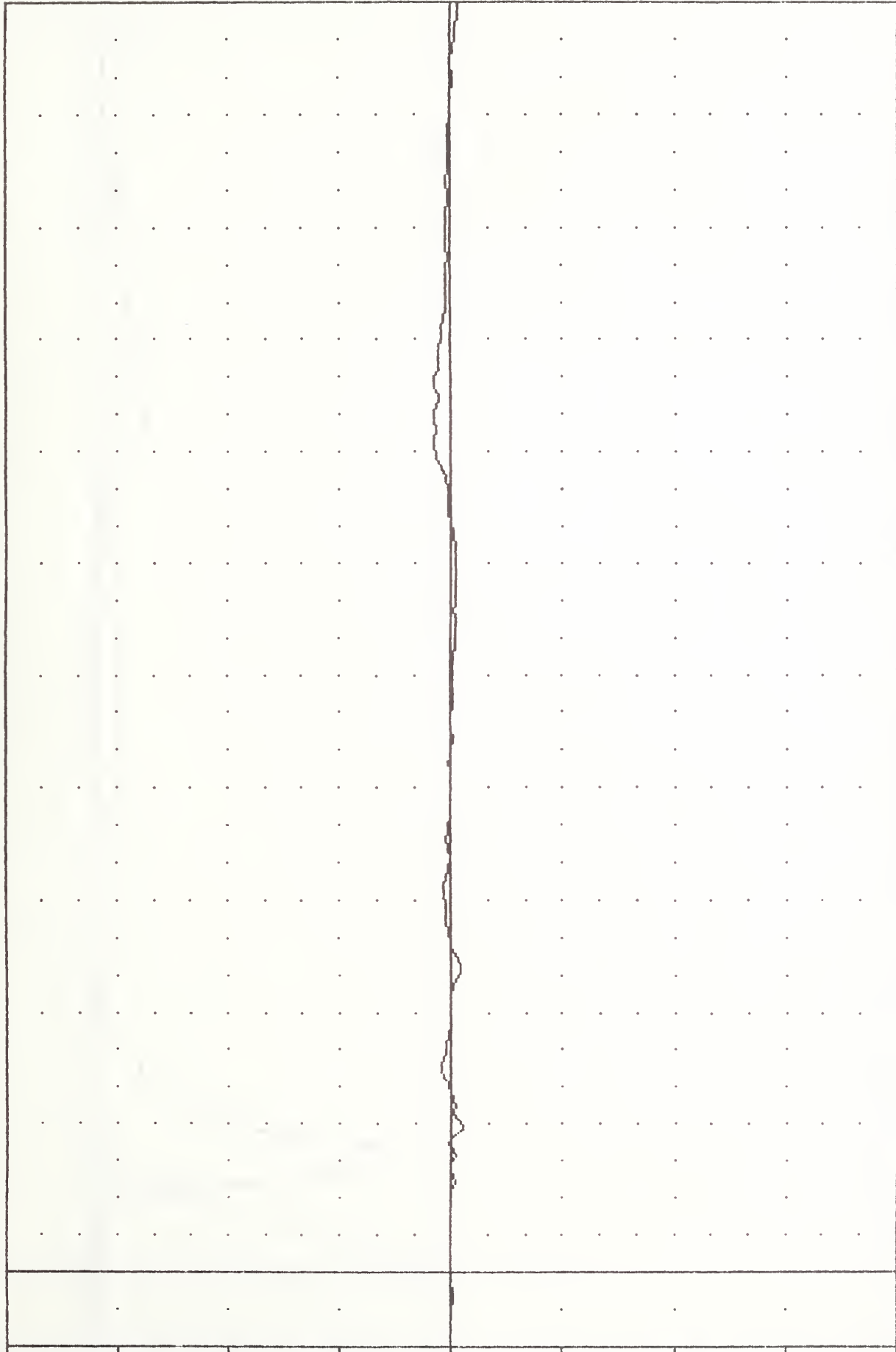
ACCELERATION (G)

-60.00

-120.00

-180.00

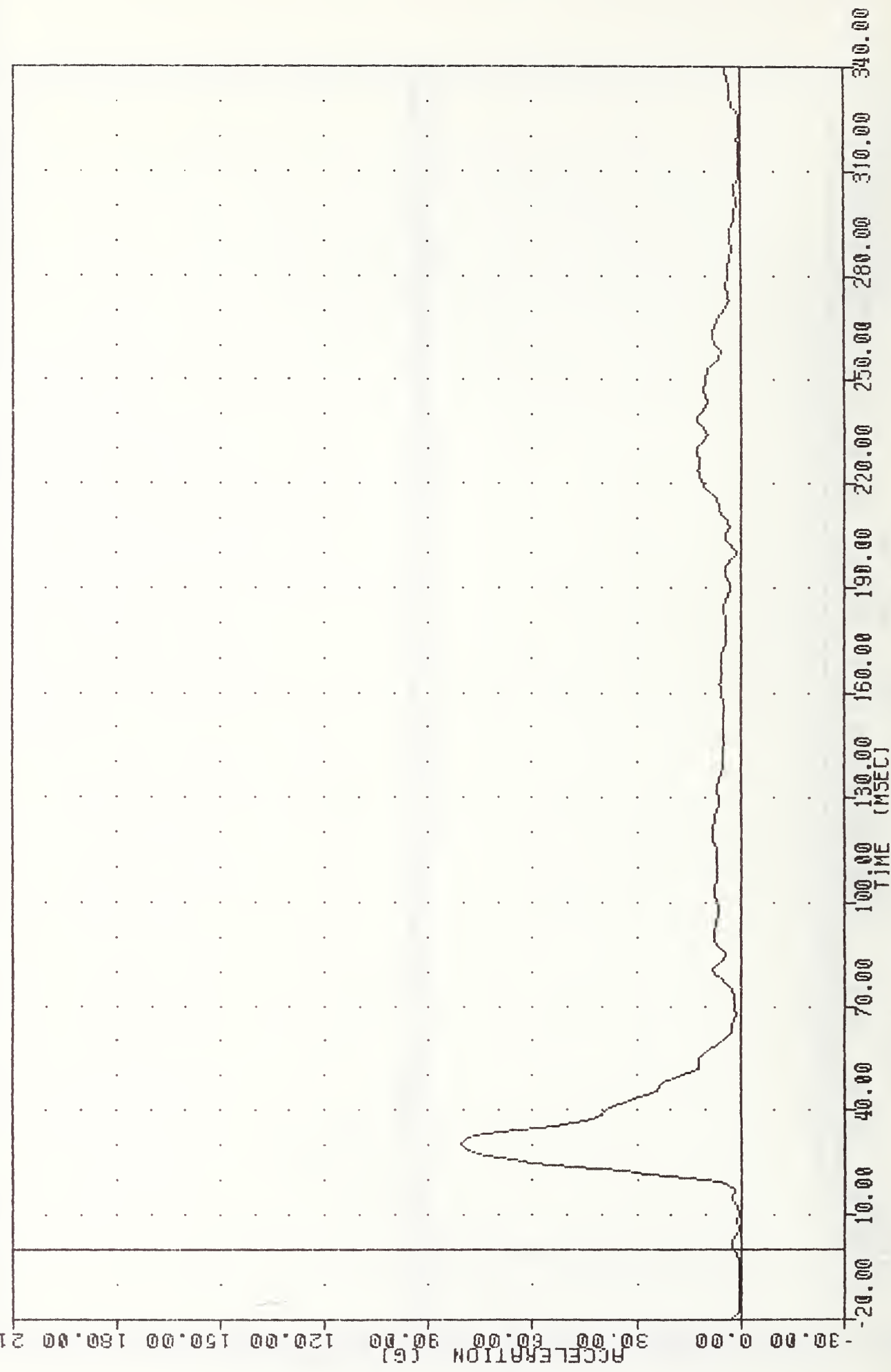
-240.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER PELVIS Z-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
PEVRG1

FILTER = HSR1 136/ 189/ -50
MIN. MAX VALUES = 0.17e 324.38 , 80.64 e 30.62



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER PELVIS RESULTANT ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

PEVW1

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES =

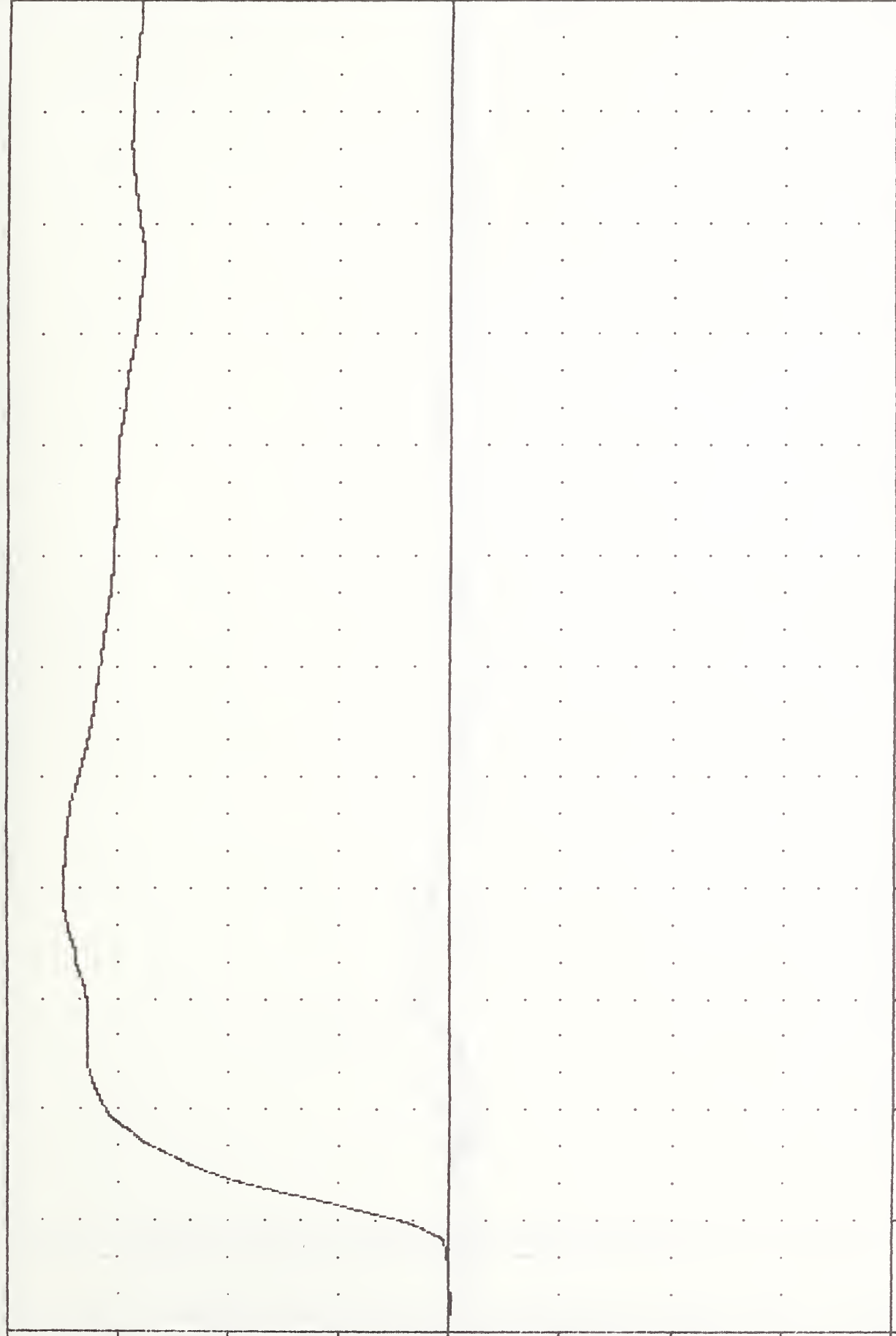
-0.08

6.75,

34.90

99.88

VELOCITY (MPH)



0.00 25.00 50.00 75.00 100.00 125.00 150.00 175.00 200.00 225.00 250.00 275.00 300.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
DRIVER PELVIS Y-AXIS VELOCITY

VHIC , 910627

LEFT SIDE IMPACT

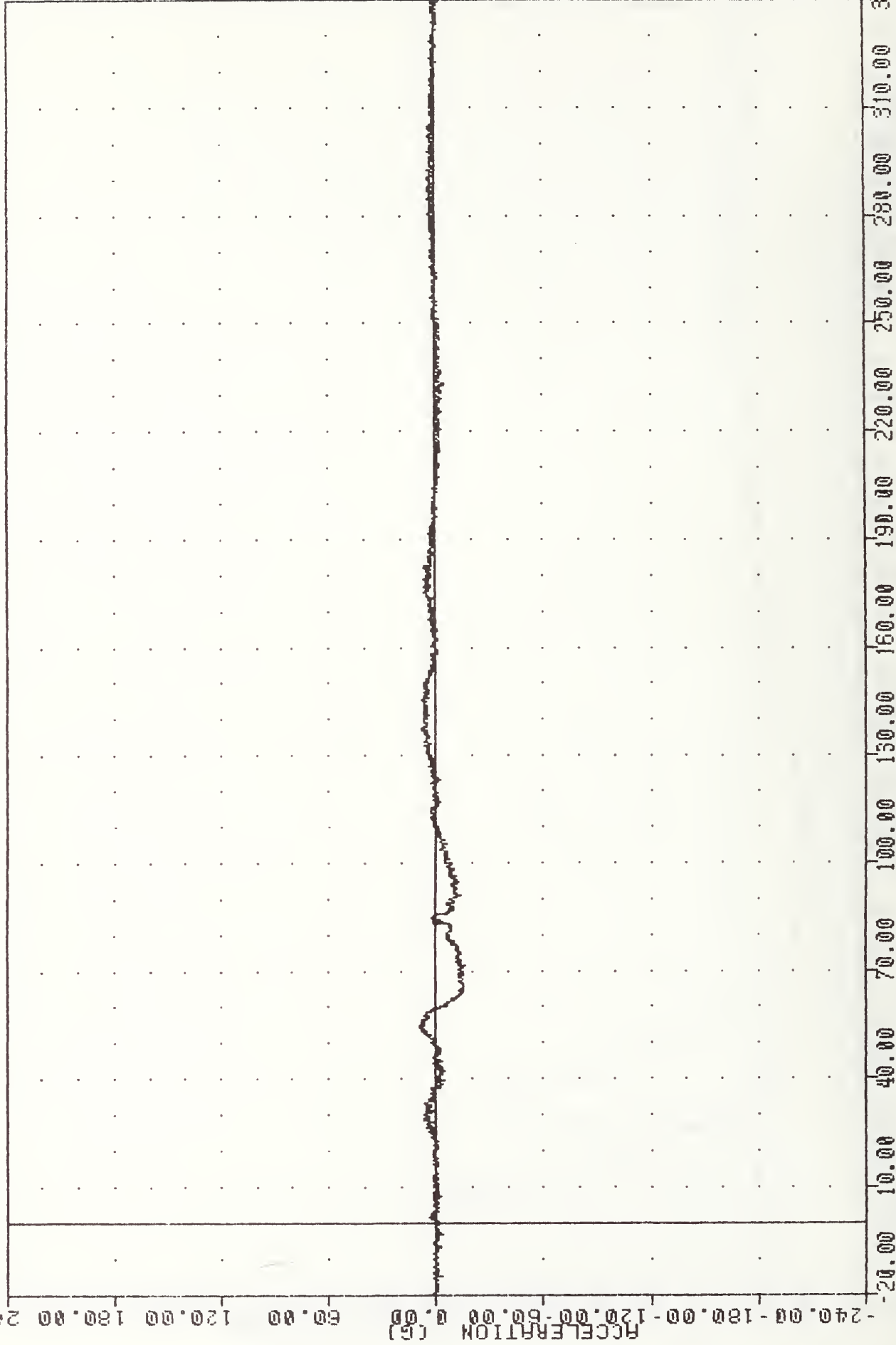
91178

HEDXG4

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -15.82 71.25 ,

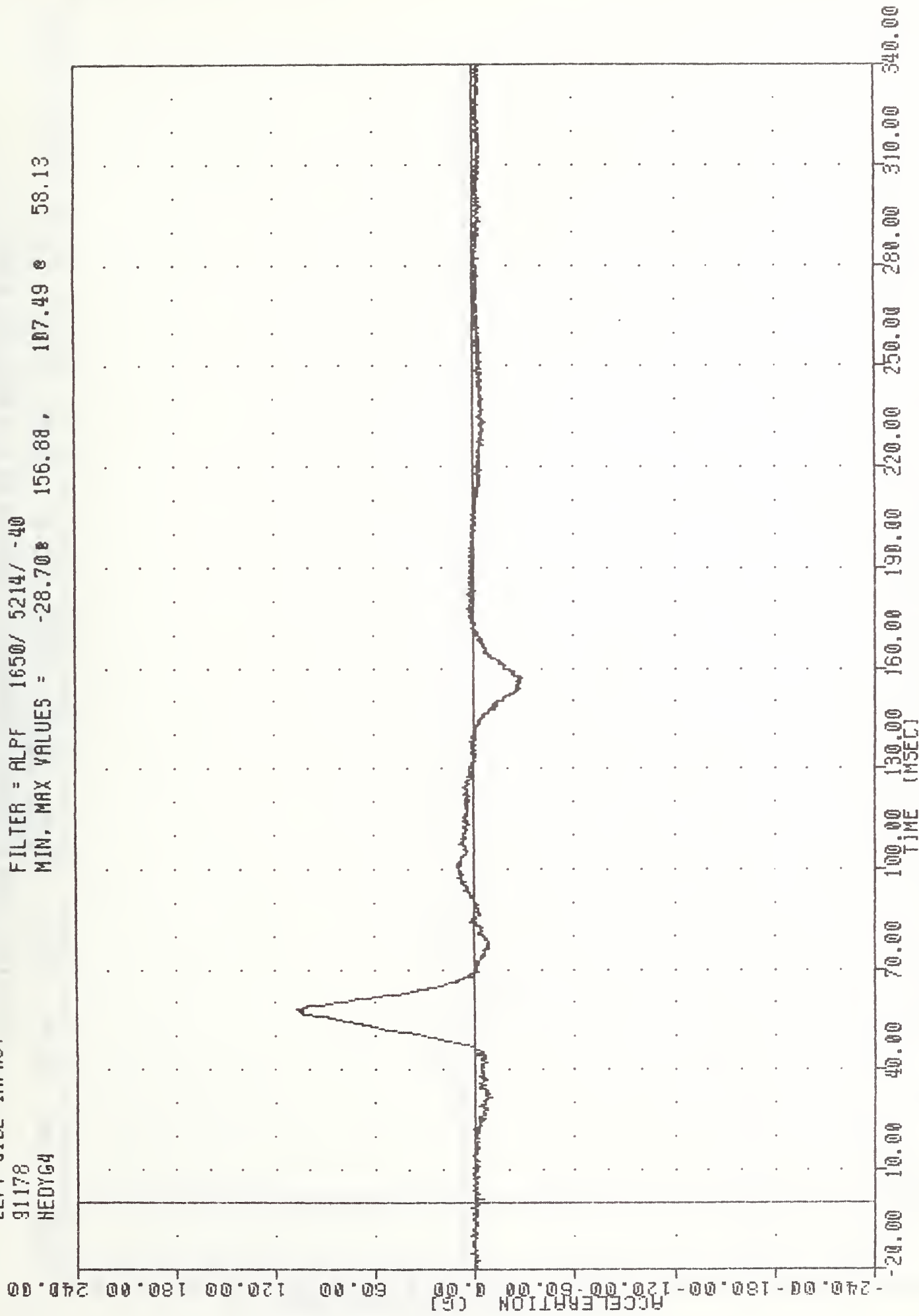
9.54 54.25



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER HEAD X-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
HEDYG4

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -28.708 156.88 , 107.49 @ 58.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSW
LEFT REAR PASSENGER HEAD Y-AXIS ACCELERATION

VRTC , 910627

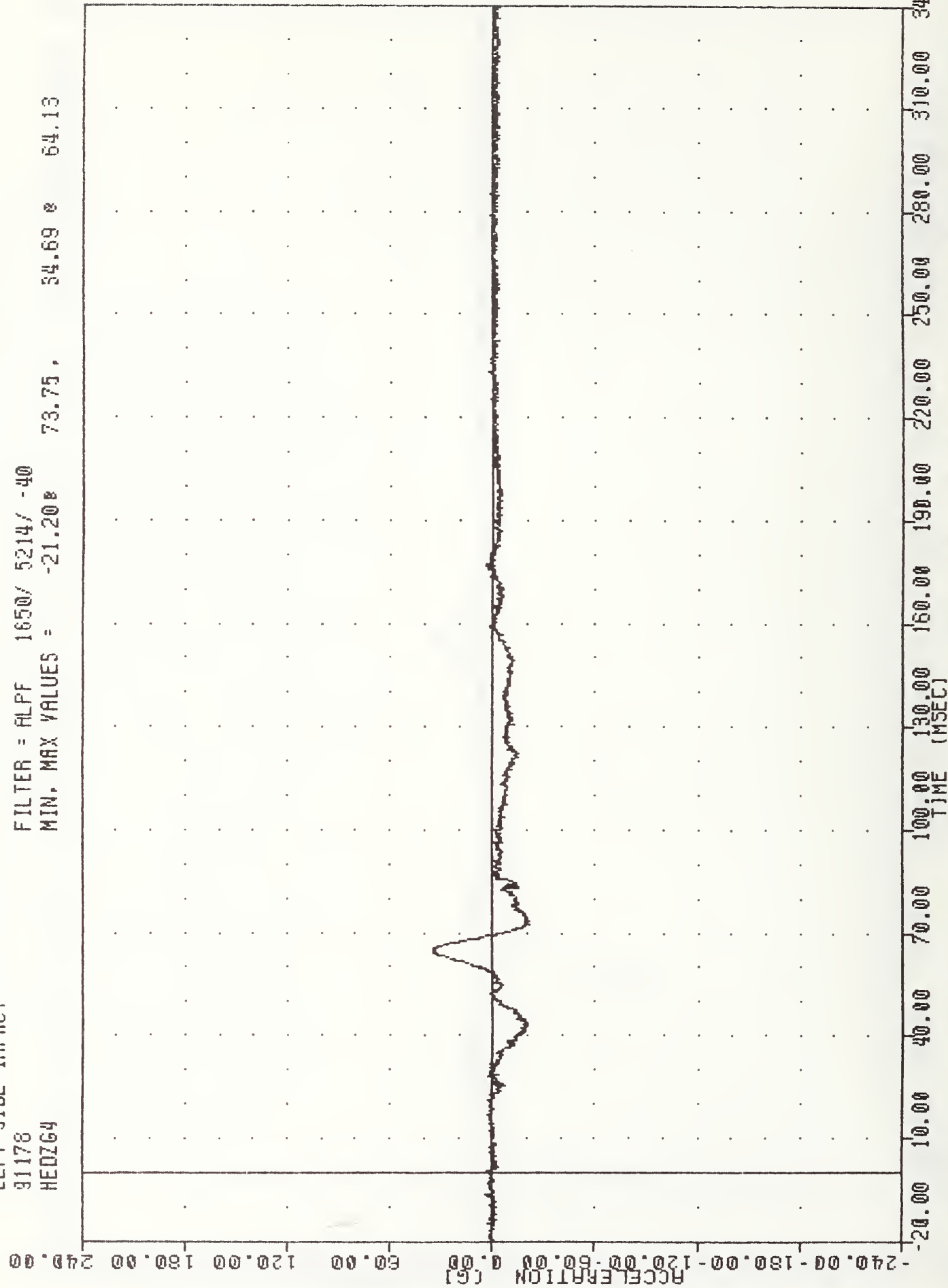
LEFT SIDE IMPACT

91178

HEDZG4

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -21.208 73.75, 34.69 0 64.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER HEAD Z-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

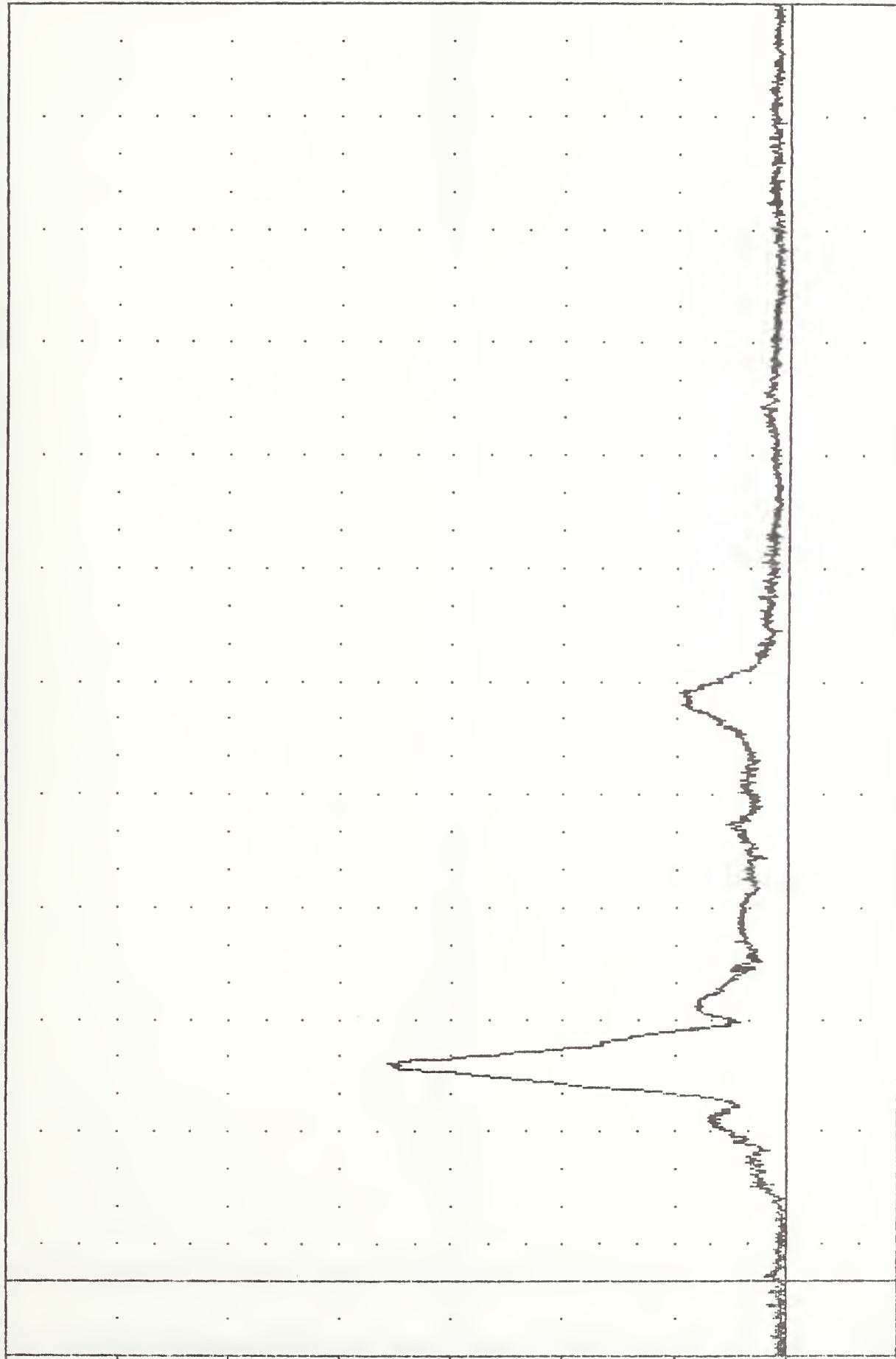
91178

HEOR64

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = 0.21e -1.25, 107.60 e 58.13

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER HEAD RESULTANT ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

T01XG4

FILTER = HSRI 136/ 189/ -50

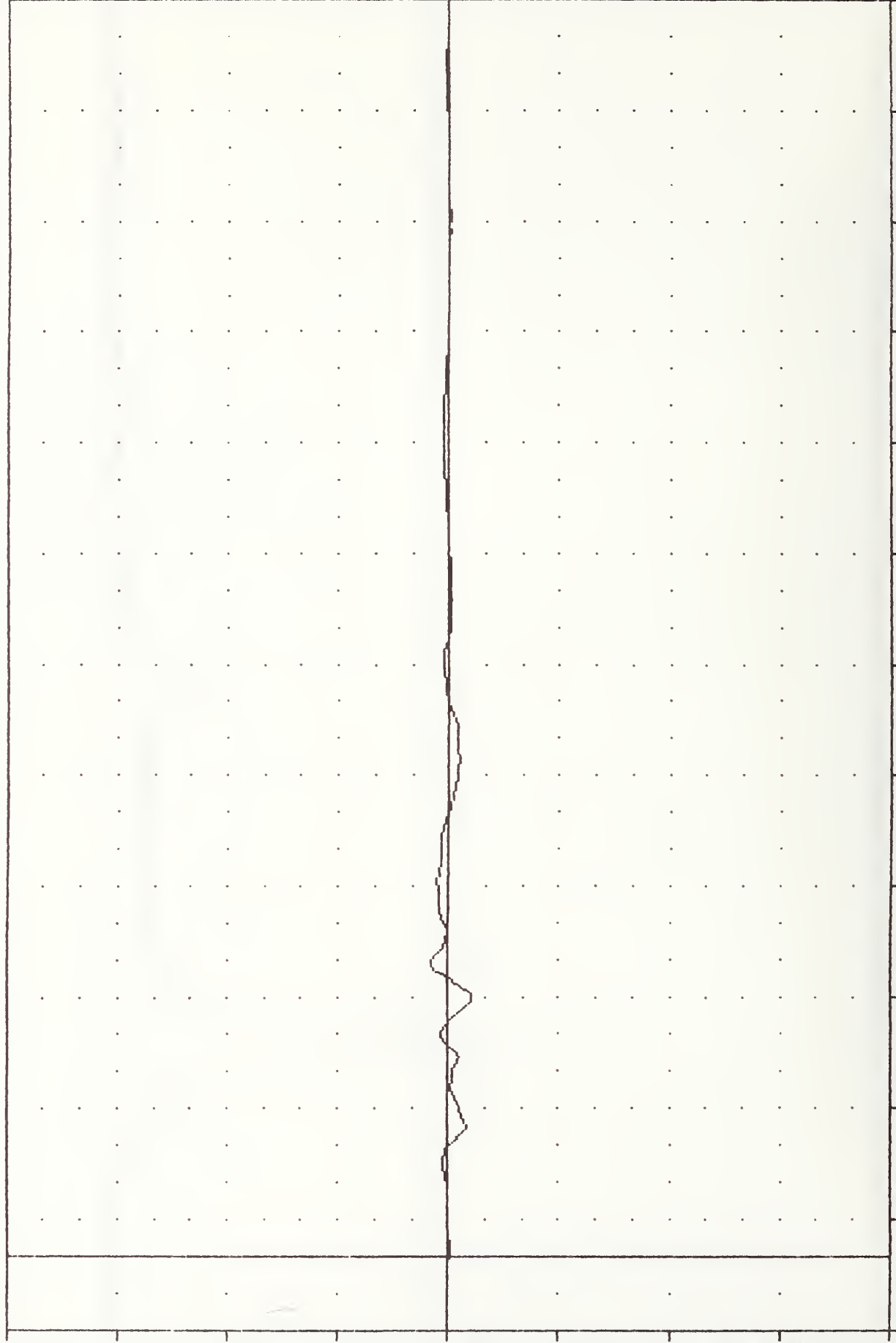
MIN, MAX VALUES = -12.87%

69.38,

9.68 e

78.75

ACCELERATION (G)

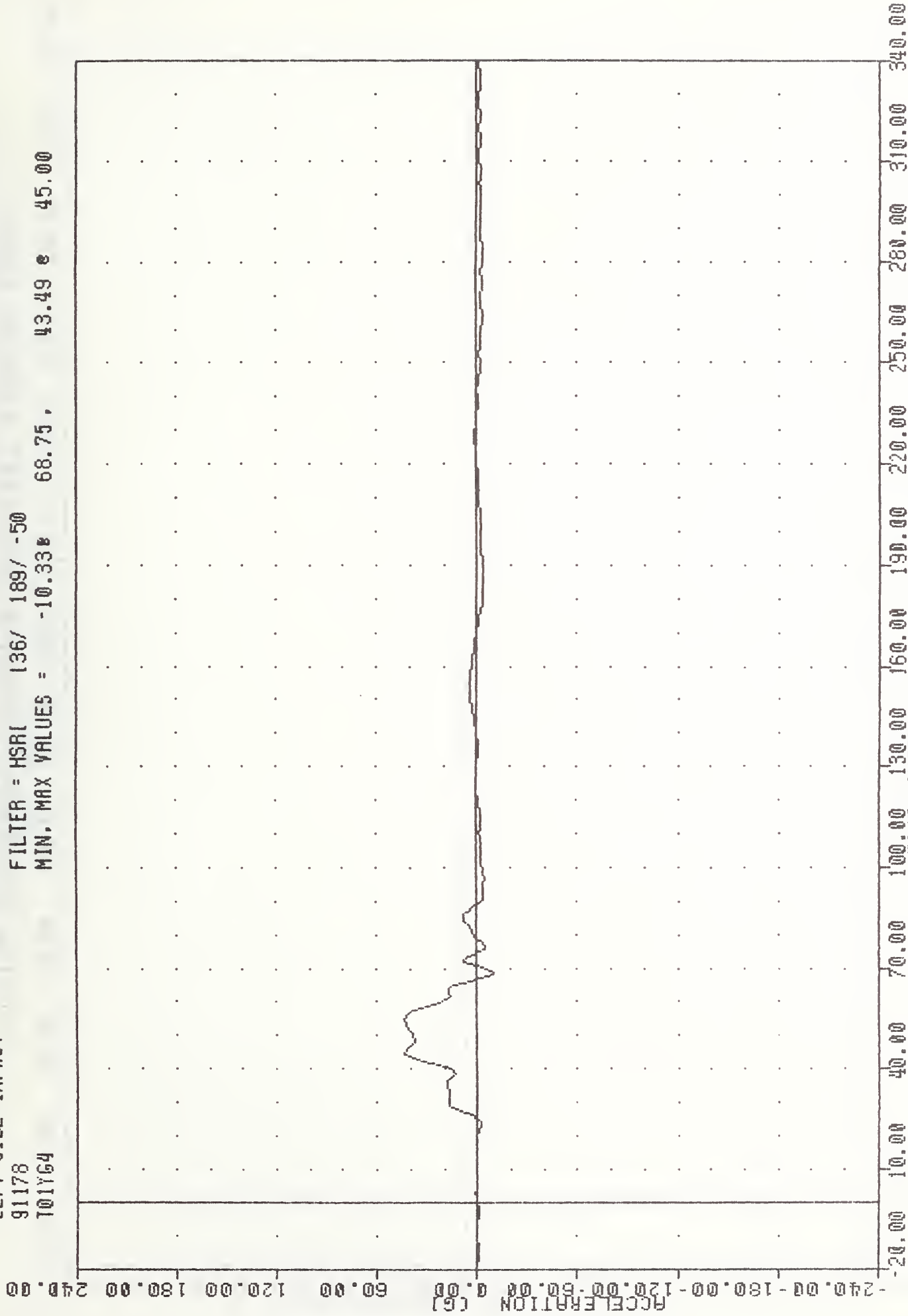


MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRV
LEFT REAR PASSENGER UPPER SPINE X-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
101Y64

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -10.33% 68.75 ,

43.49 e 45.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER UPPER SPINE Y-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

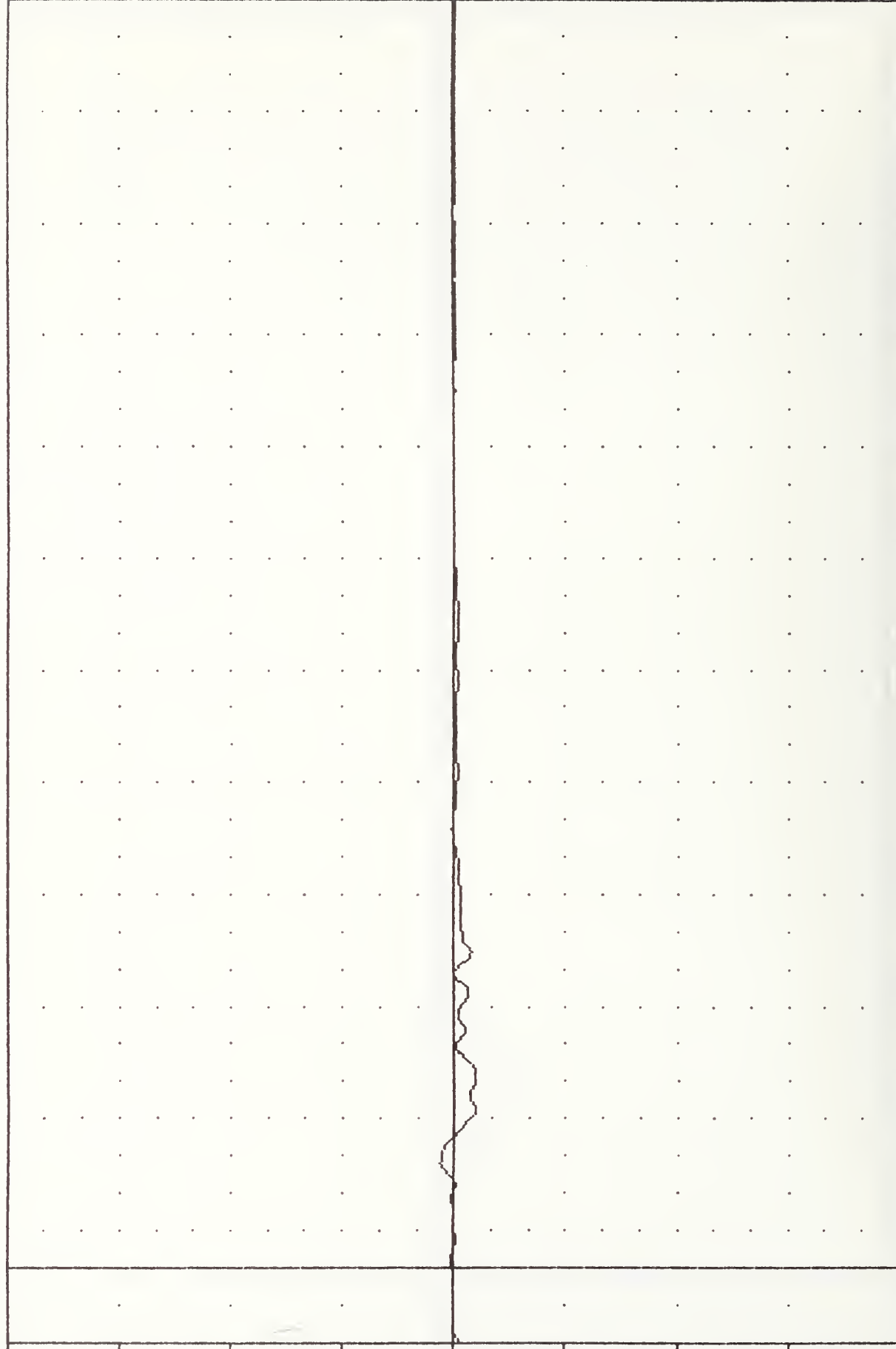
701264

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -11.520 42.50 ,

7.33 28.13

ACCELERATION (G)



-240.00 -180.00 -120.00 -60.00 0.00 60.00 120.00 180.00 240.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER UPPER SPINE Z-AXIS ACCELERATION

VRTC 910627

LEFT SIDE IMPACT

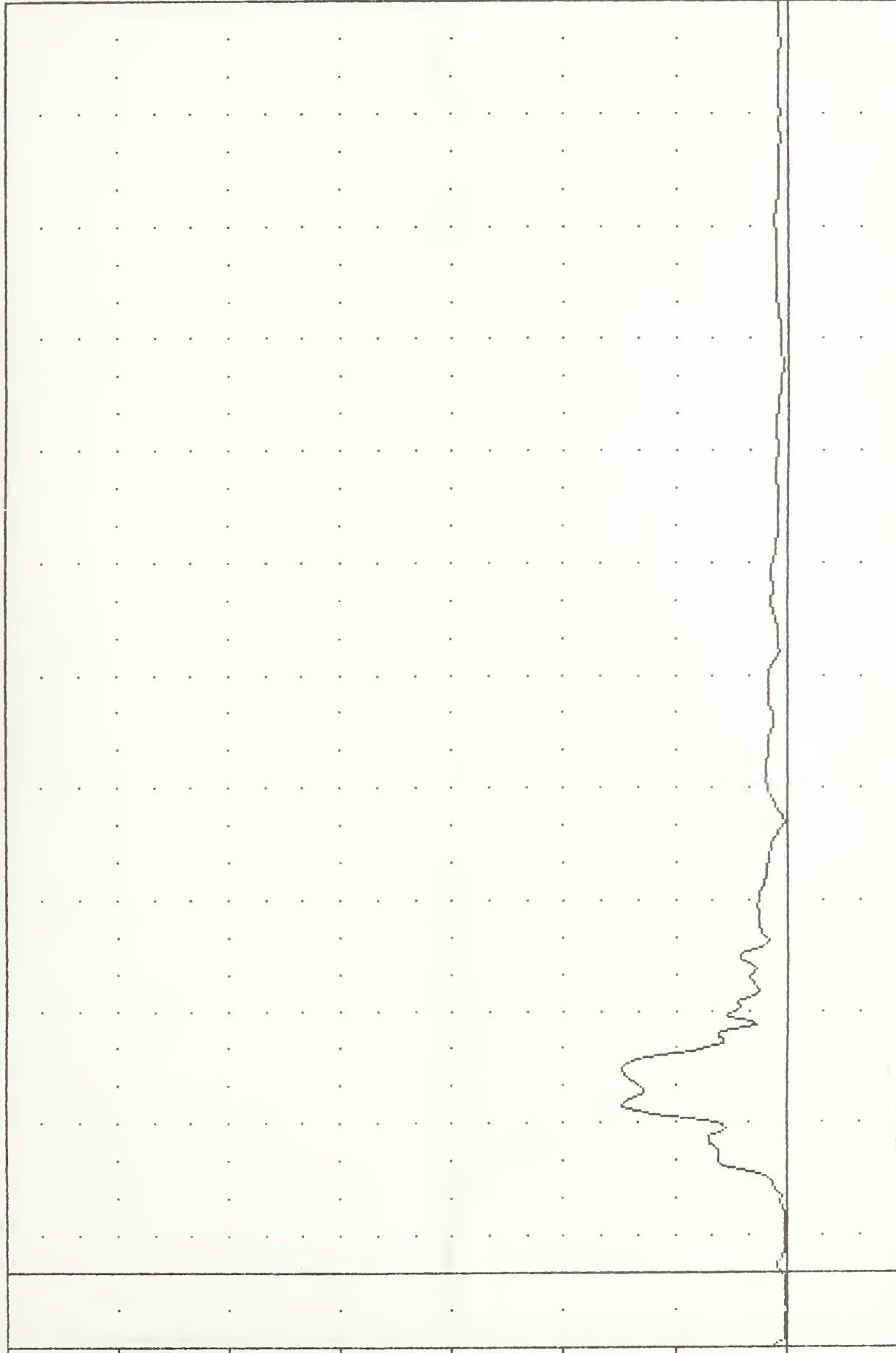
91178

T01RG4

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.062 -10.00, 44.57 54.38

ACCELERATION (G)



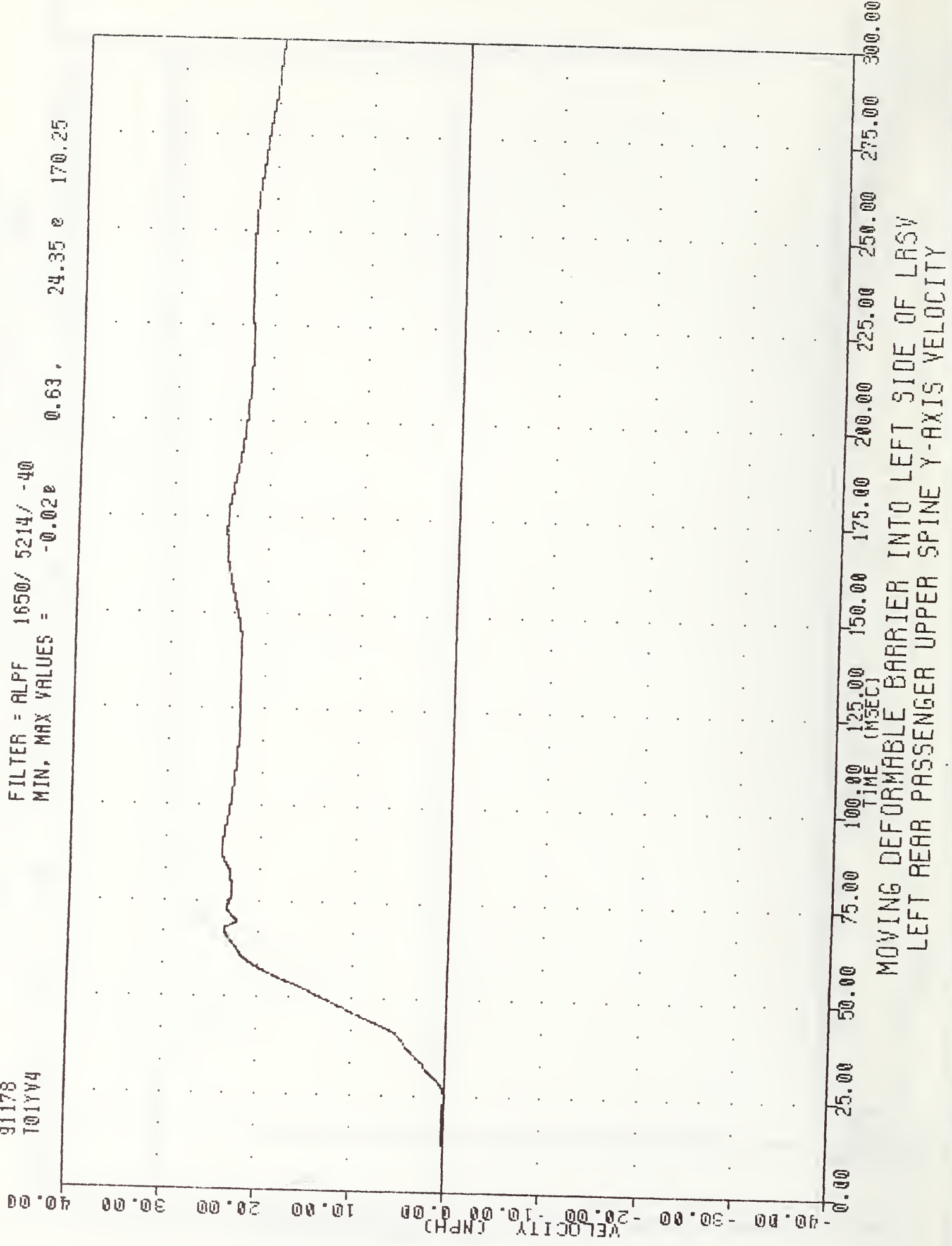
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER UPPER SPINE RESULTANT ACCELERATION

VRTC . 910627
LEFT SIDE IMPACT
91178
T01YV4

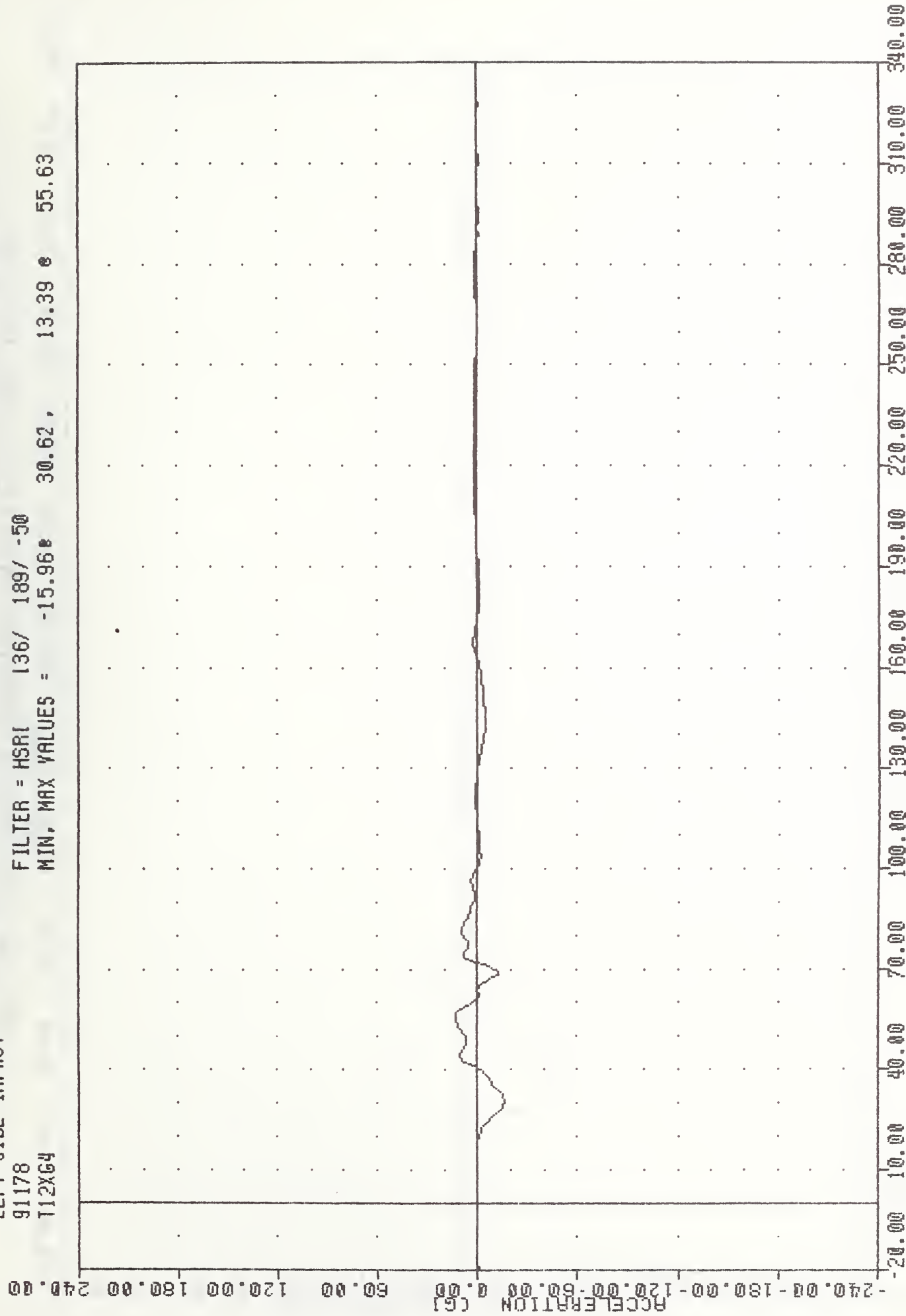
FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = -0.020 0.63, 24.35 e 170.25



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSW
LEFT REAR PASSENGER UPPER SPINE Y-AXIS VELOCITY

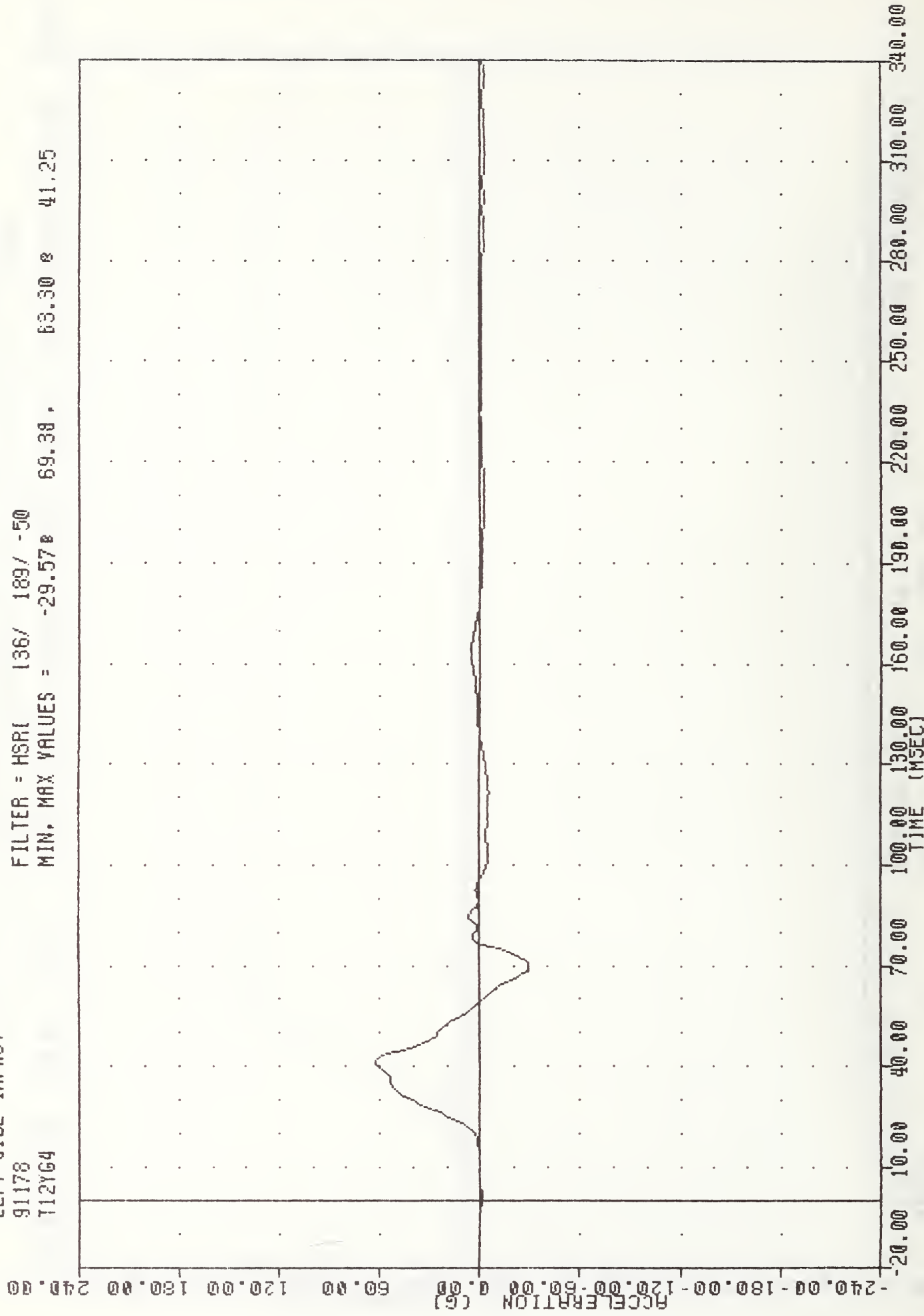
VRTC , 910627
LEFT SIDE IMPACT
91178
T12XG4

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -15.96 30.62, 13.39 55.63



VRTC . 910627
LEFT SIDE IMPACT
91178
712Y64

FILTER = HSRI 136/ 189/ -50
MIN. MAX VALUES = -29.57 69.38 63.30 8 41.25



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LOWER SPINE Y-AXIS ACCELERATION

VRTC , 910627

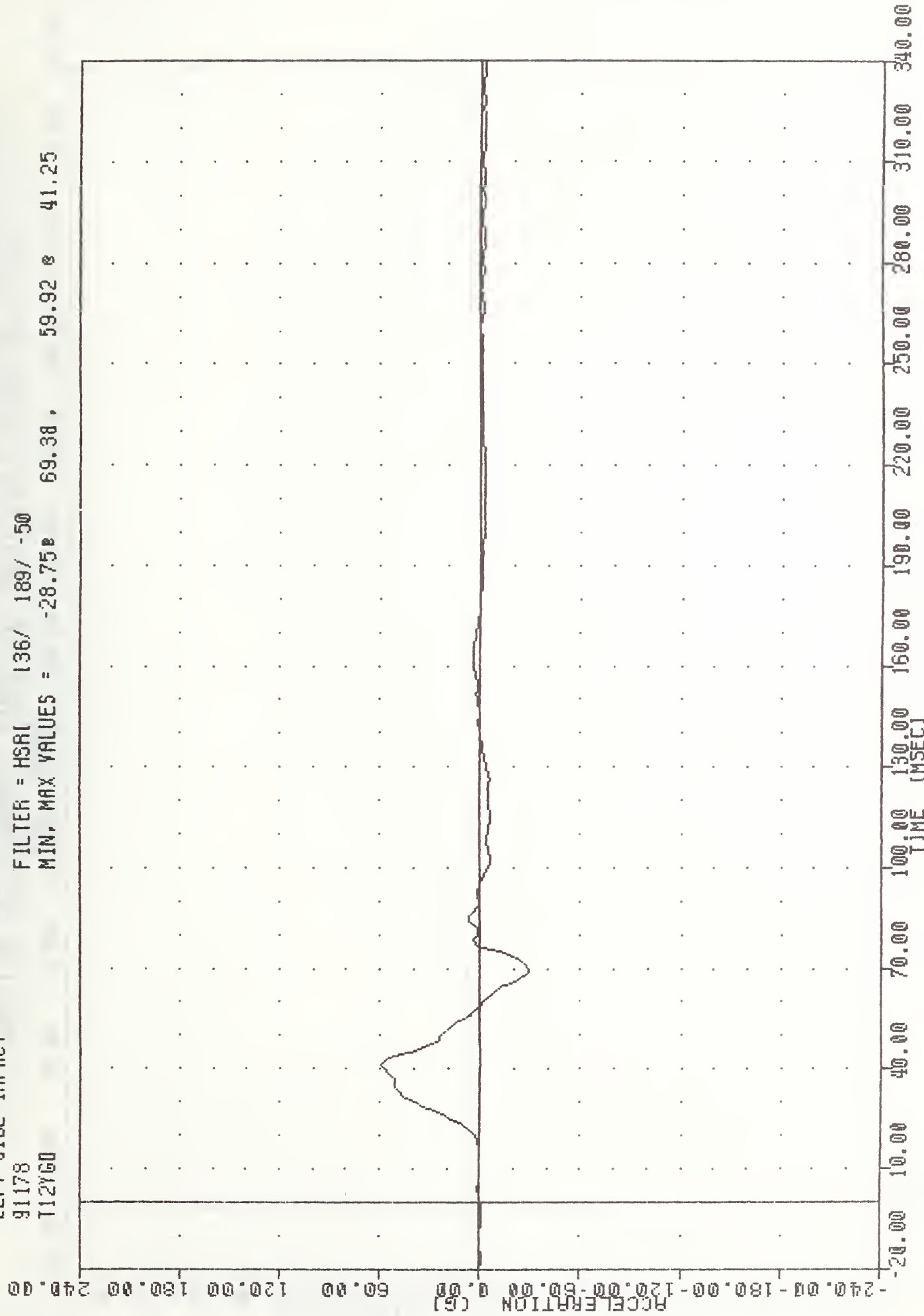
LEFT SIDE IMPACT

91178

T12Y60

FILTER = HSRI 136/ 189/ -50

MIN, MAX VALUES = -28.75 69.38 , 59.92 41.25



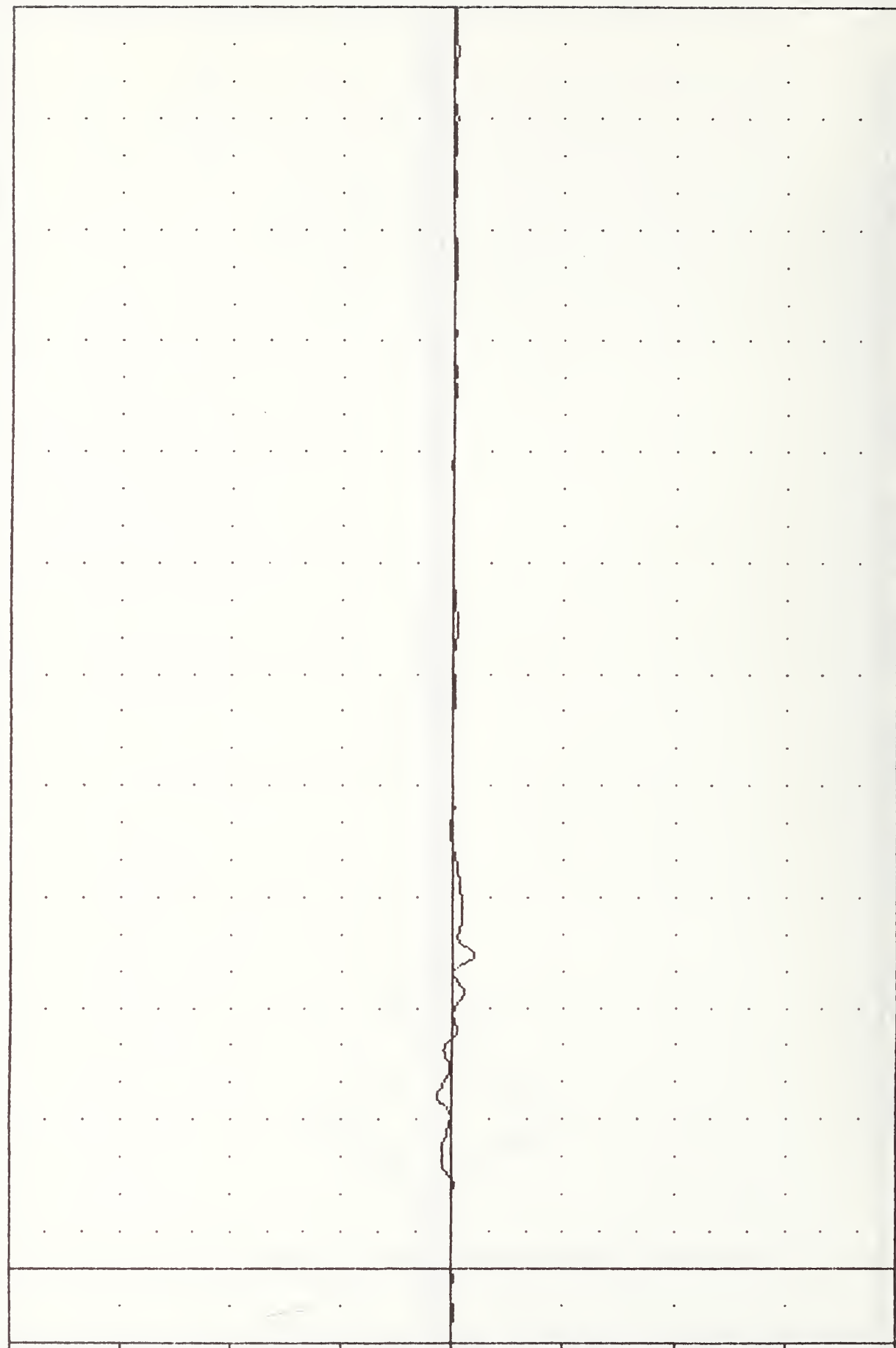
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LASV
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT ACCELERATION

VRTC , 910627
 LEFT SIDE IMPACT
 91178
 T12Z64

FILTER = HSRI 136/ 189/ -50
 MIN, MAX VALUES = -11.60 84.38 ,

8.46 8 46.25

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRV
 LEFT REAR PASSENGER LOWER SPINE Z-AXIS ACCELERATION

VRTC 910627

LEFT SIDE IMPACT

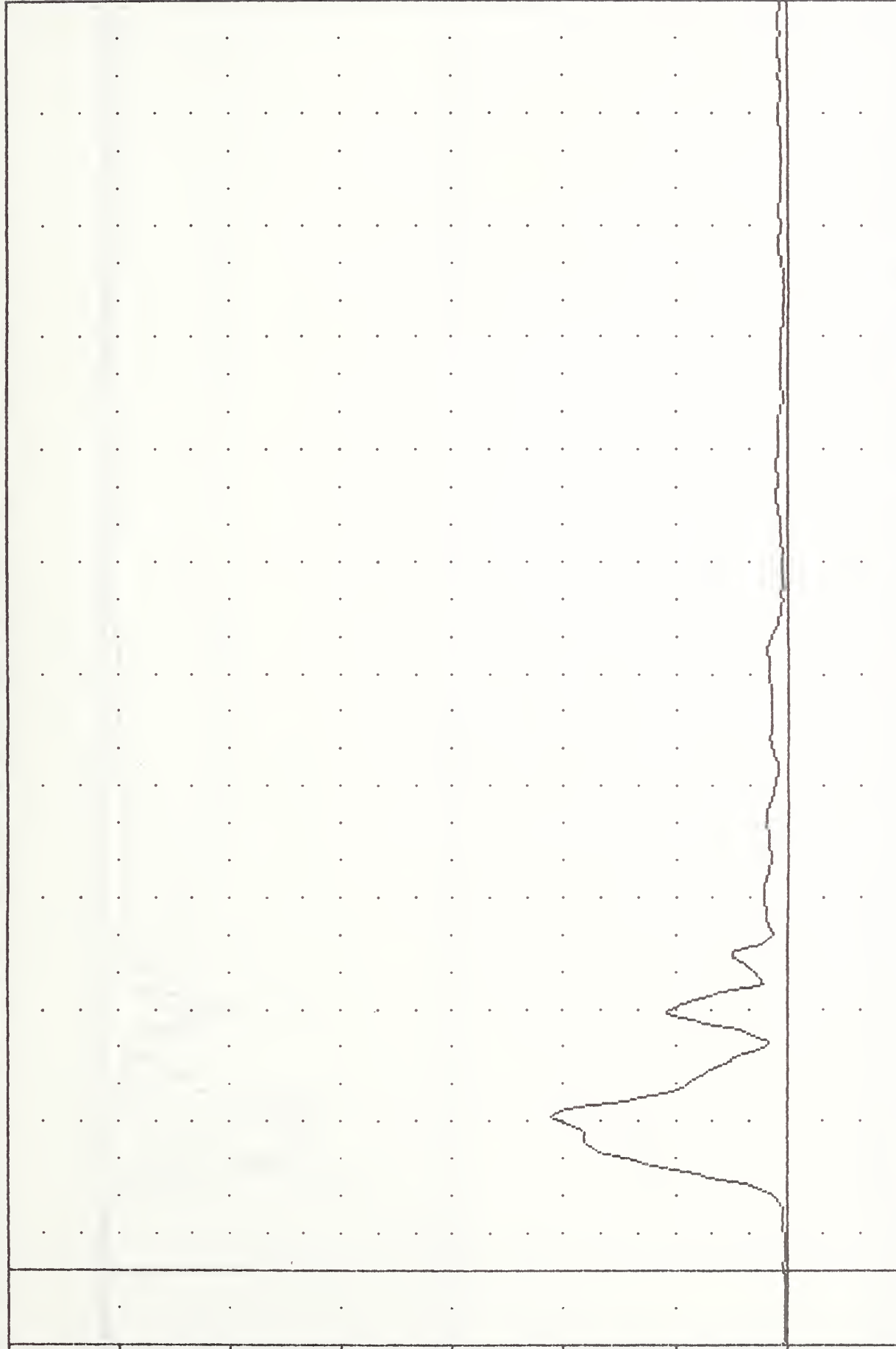
91178

112864

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.178 4.38 63.39 41.25

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LOWER SPINE RESULTANT ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

T12R60

FILTER = HSRI 136/ 189/ -50

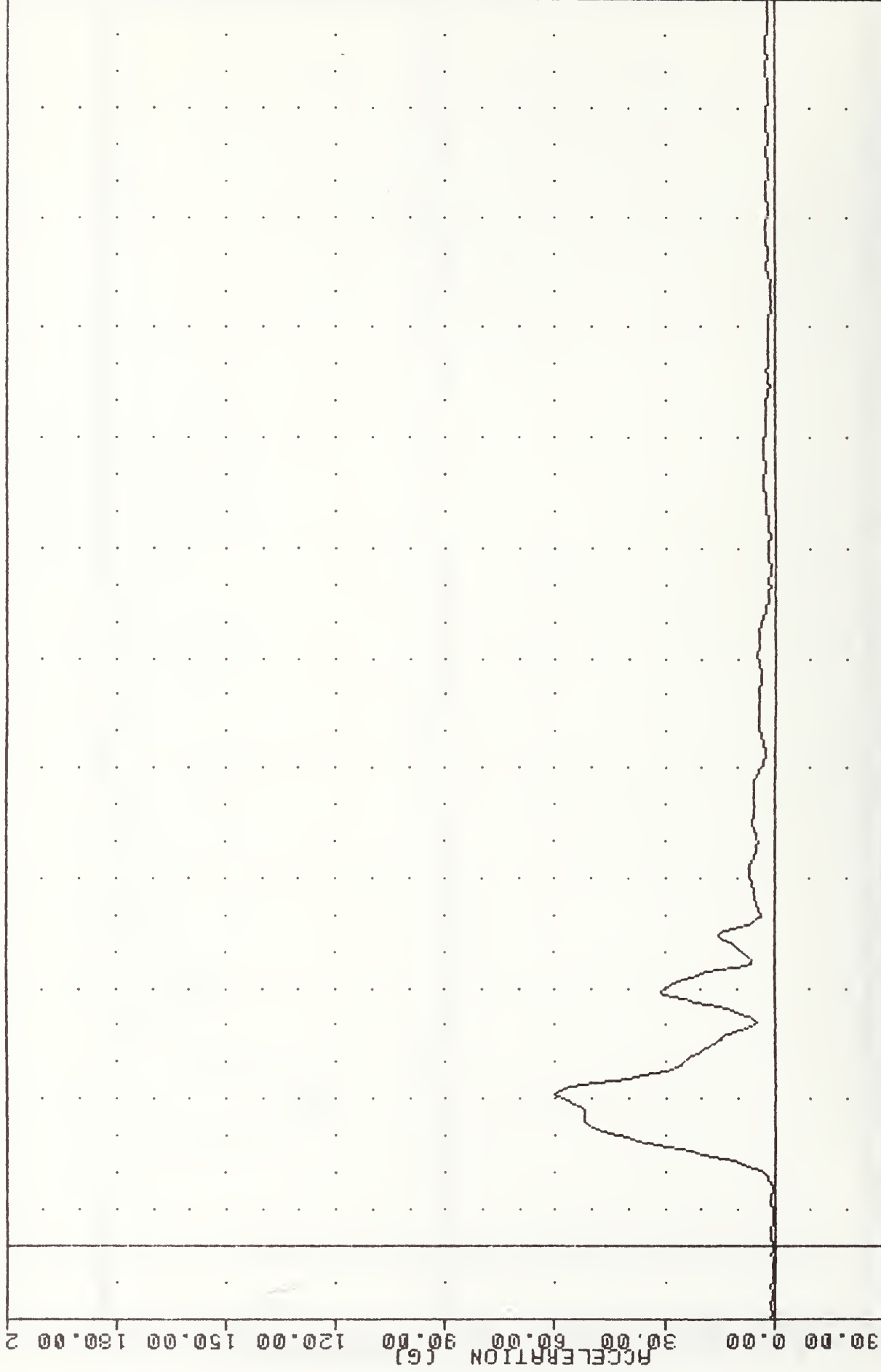
MIN, MAX VALUES = 0.21e

-8.13,

60.02 e

41.25

210.00



-20.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV

LEFT REAR PASSENGER LOWER SPINE REDUNDANT RESULTANT ACCELERATION

VRIC , 910627

LEFT SIDE IMPACT

91178

T12YV4

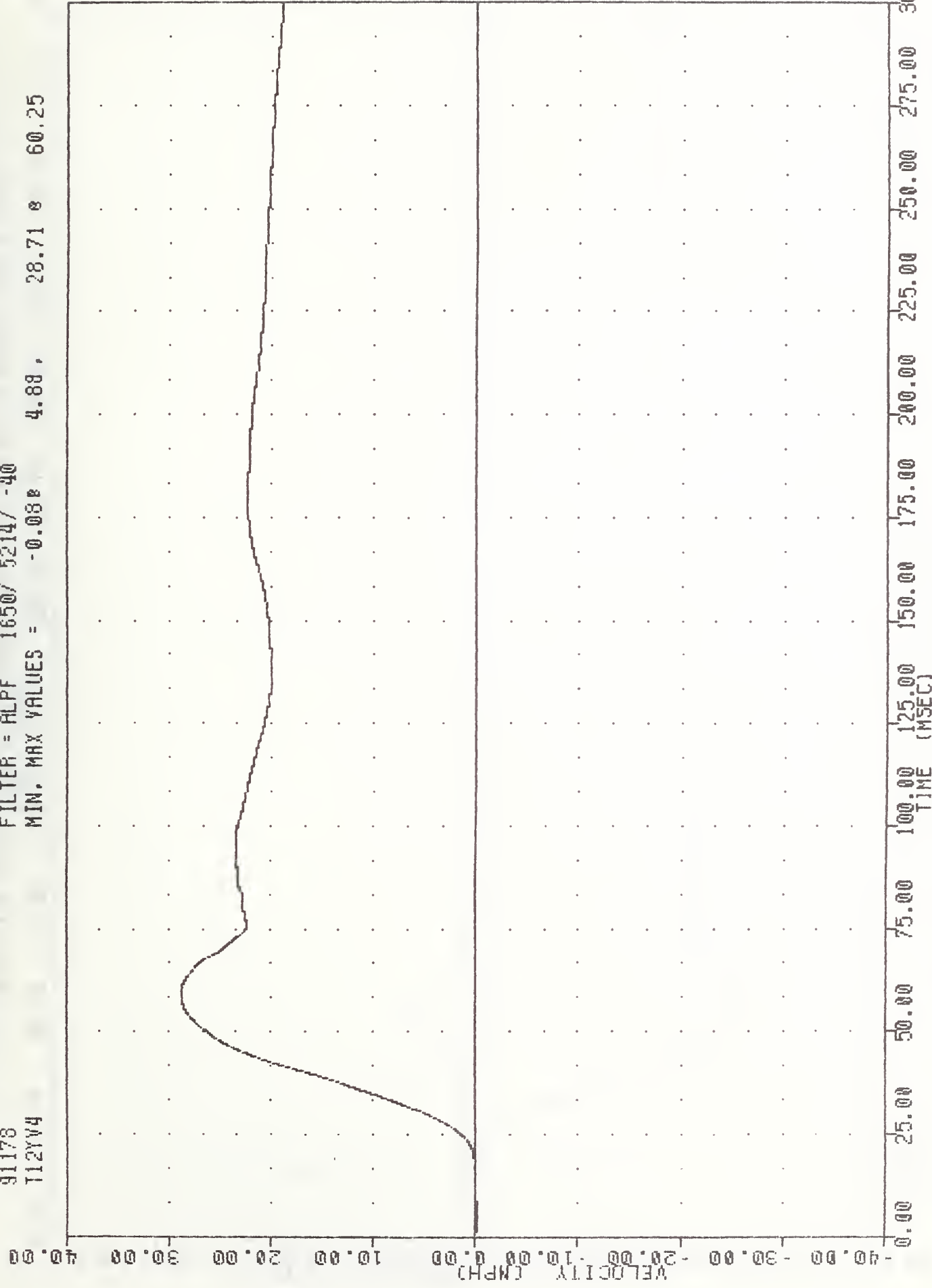
FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -0.038

4.88 ,

28.71 s

60.25



VRTC , 910627

LEFT SIDE IMPACT

91178

T12YV0

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -0.028

0.63, 27.37 @ 58.63

40.00

30.00

20.00

10.00

0.00

-10.00

-20.00

-30.00

-40.00

VELOCITY (MPH)

0.00

25.00

50.00

75.00

100.00

125.00

150.00

175.00

200.00

225.00

250.00

275.00

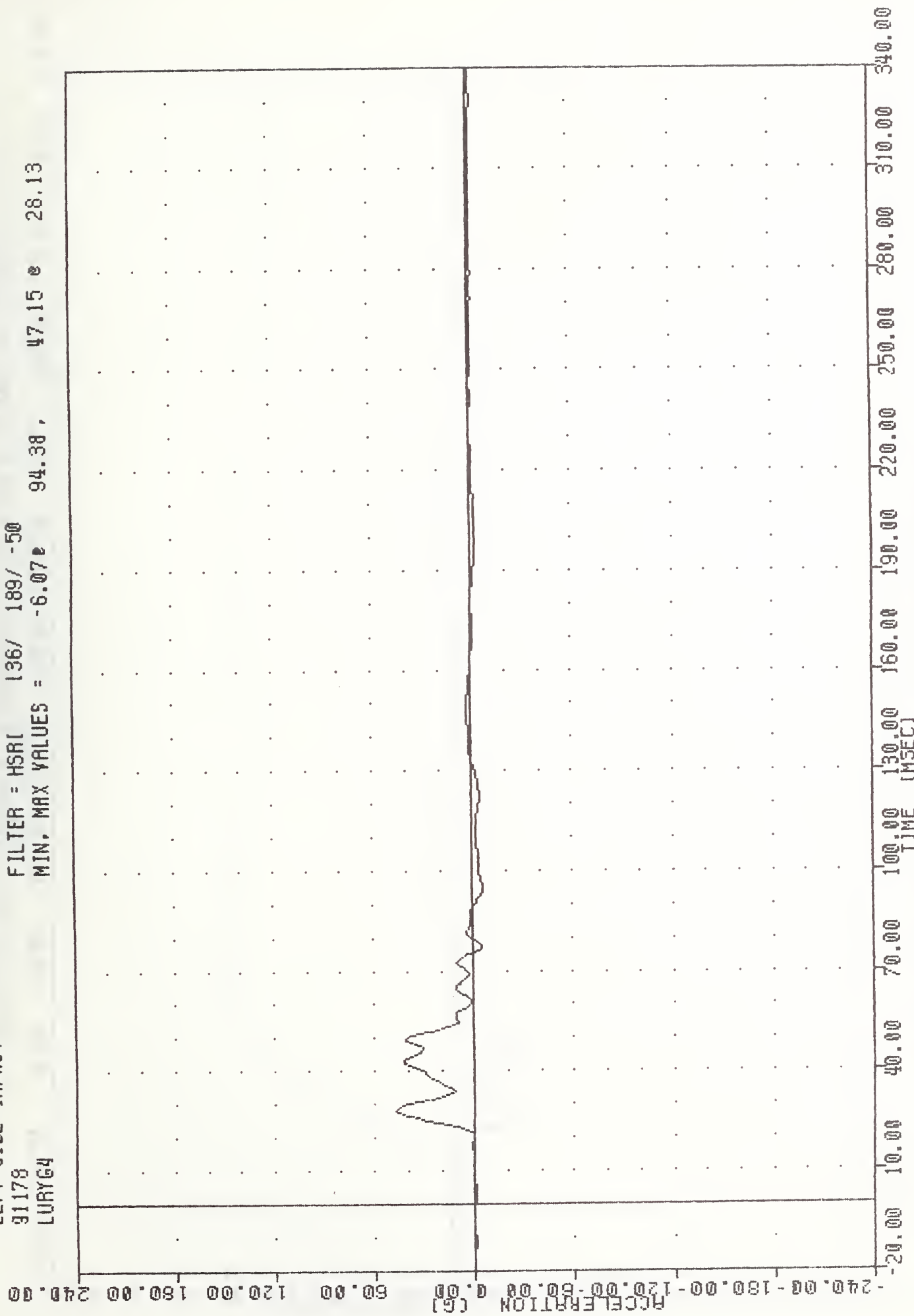
300.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LOWER SPINE Y-AXIS REDUNDANT VELOCITY

WRTC , 910627
LEFT SIDE IMPACT
91178
LURYG4

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -6.07e 94.38 , 47.15 e 28.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

LURYGO

FILTER = HSRI 136/ 189/ -50

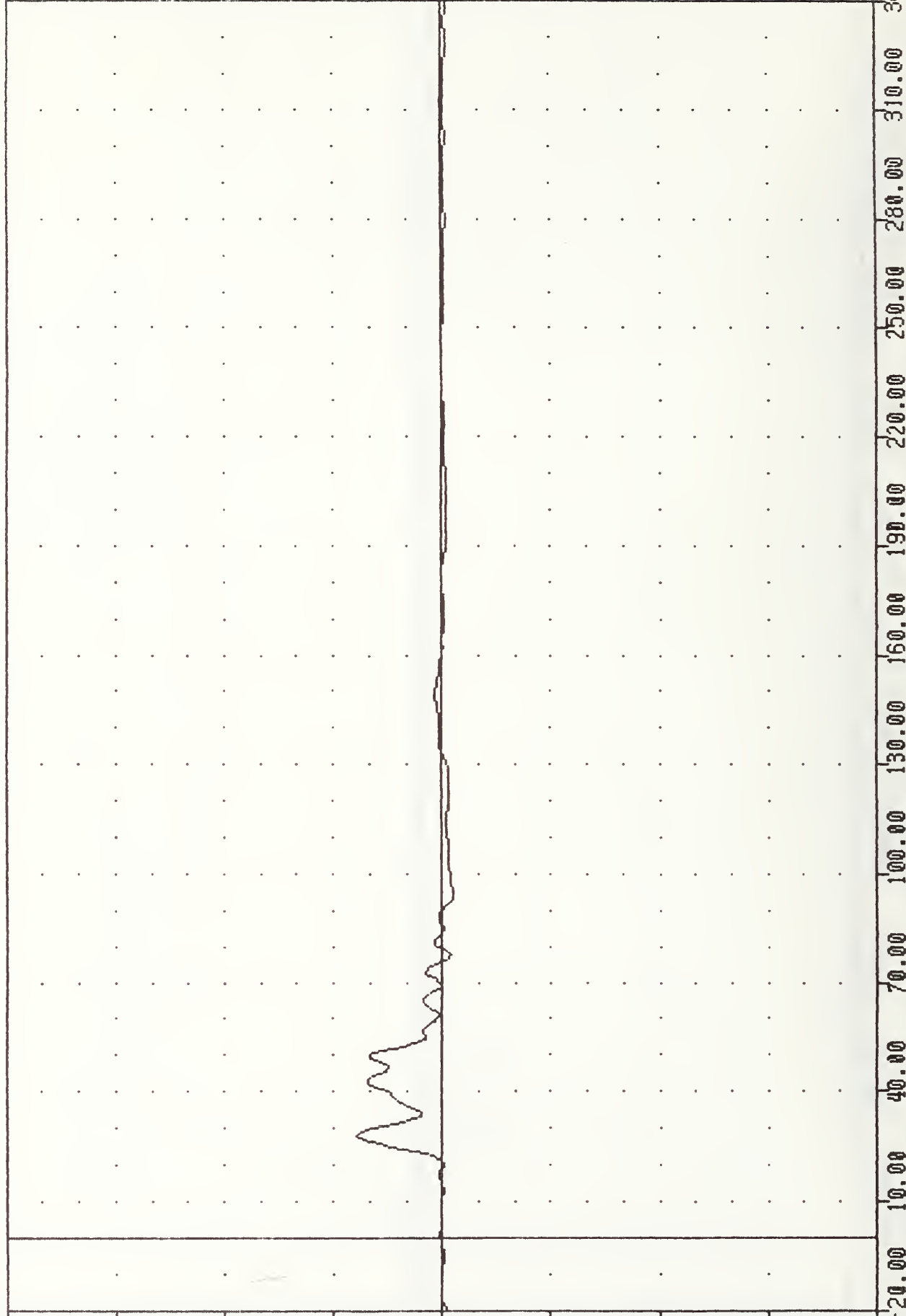
MIN. MAX VALUES = -6.07e

94.38 ,

46.82 e

28.13

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV

LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y-AXIS REDUNDANT ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

LURYV4

FILTER = ALPF 1650/ 5214/ -40

MIN. MAX VALUES = -0.08 8

7.25 , 24.39 8 89.50

40.00

30.00

20.00

10.00

0.00

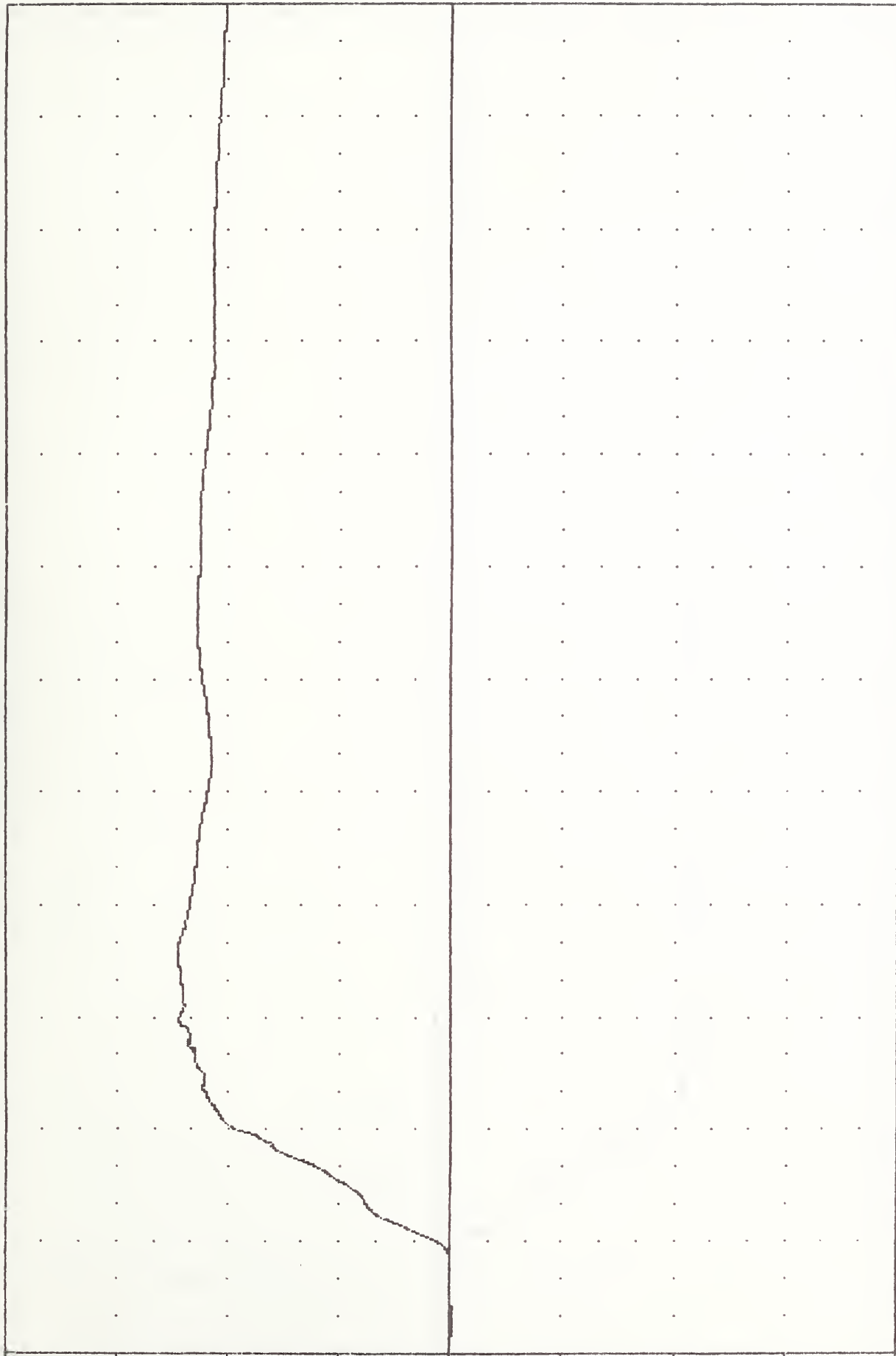
-10.00

-20.00

-30.00

-40.00

VELOCITY (MPH)



0.00

25.00

50.00

75.00

100.00

125.00

150.00

175.00

200.00

225.00

250.00

275.00

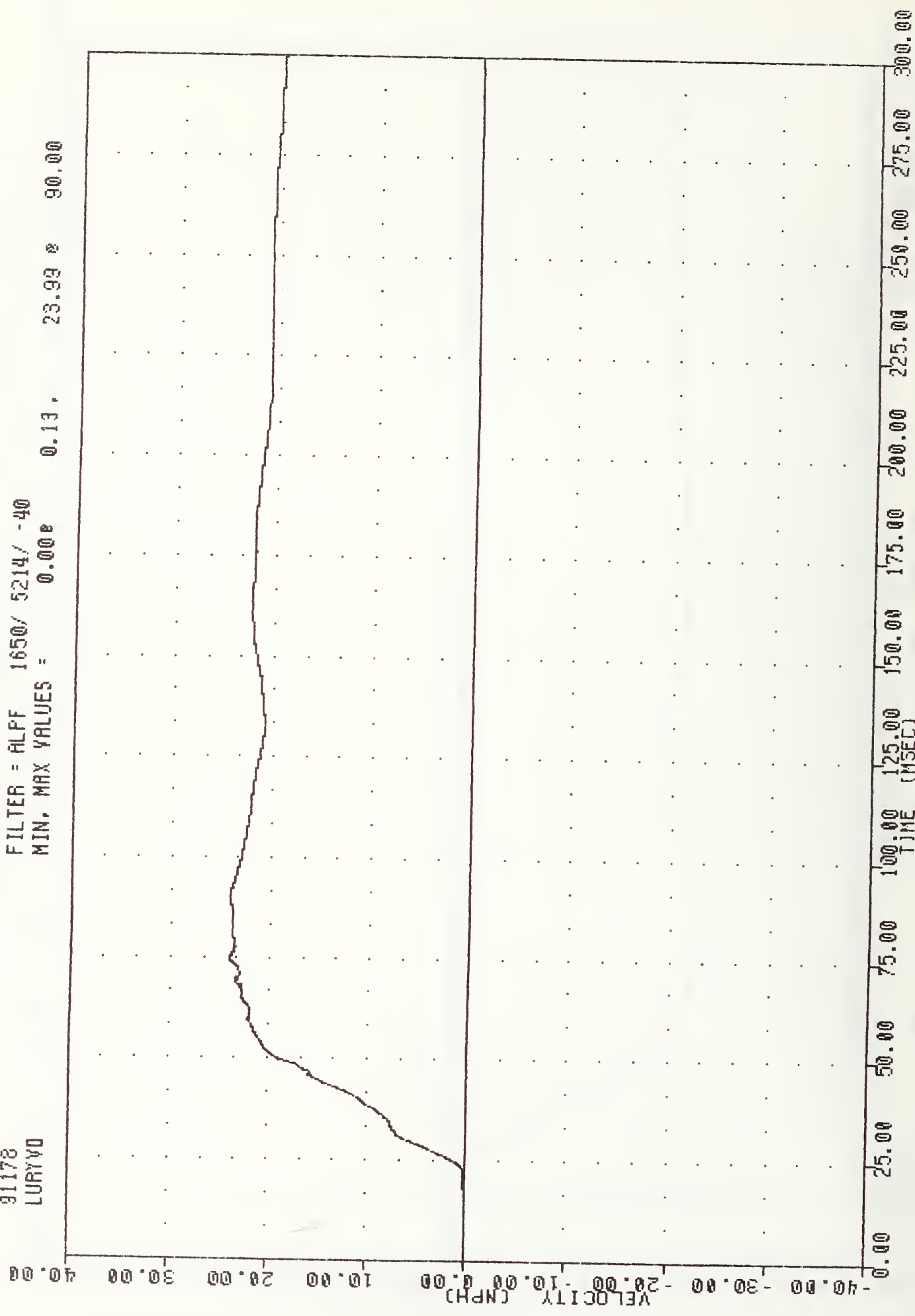
300.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y-AXIS VELOCITY

VRTC , 910627
LEFT SIDE IMPACT
91178
LURYVO

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.00E 0.13. 23.99 E 90.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LASY
LEFT REAR PASSENGER LEFT UPPER THORAX RIB Y-AXIS REDUNDANT VELOCITY

VRTC , 910627

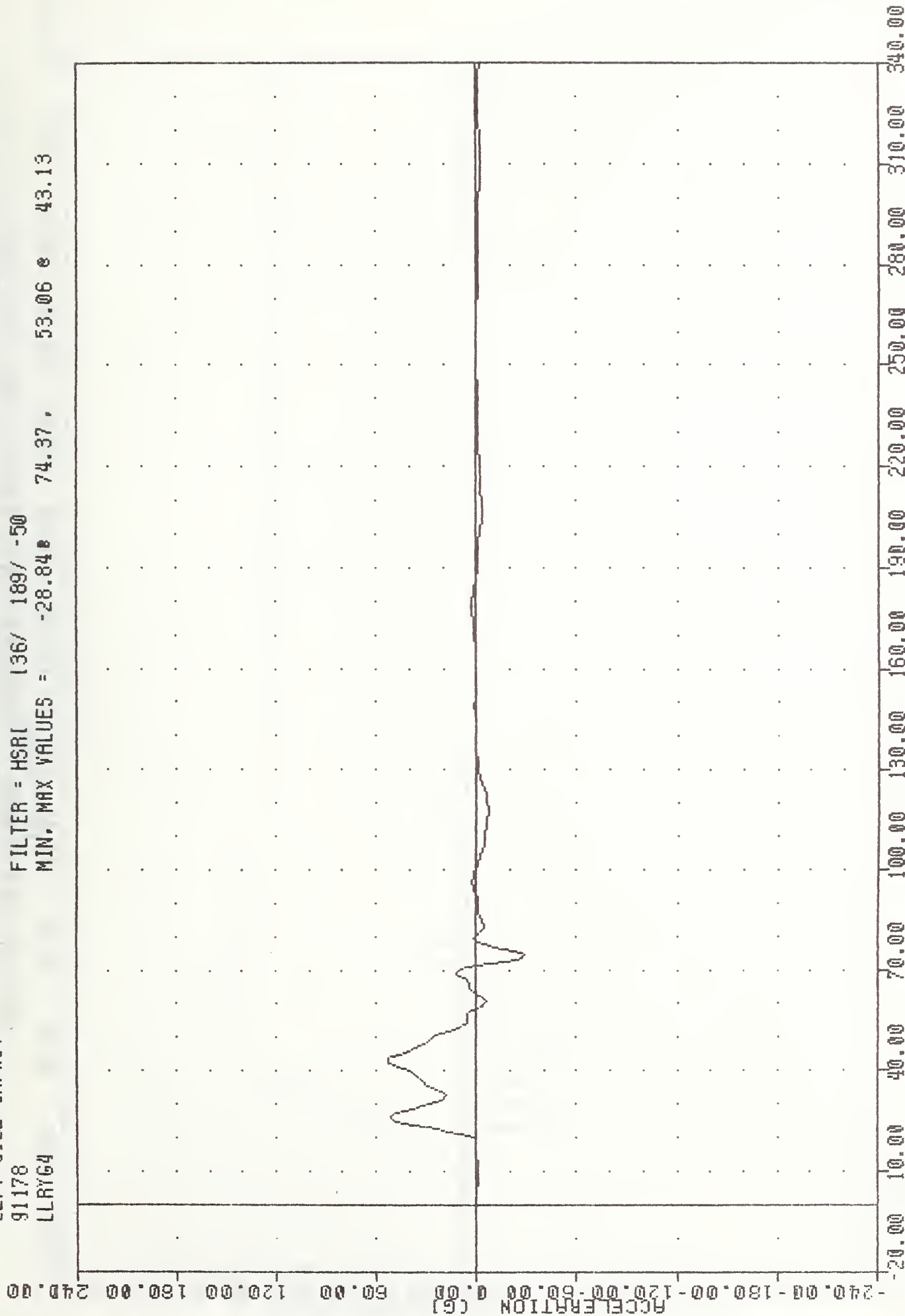
LEFT SIDE IMPACT

91178

LLRY64

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -28.84 74.37 , 53.06 43.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y-AXIS ACCELERATION

VRTC . 910627

LEFT SIDE IMPACT

91178

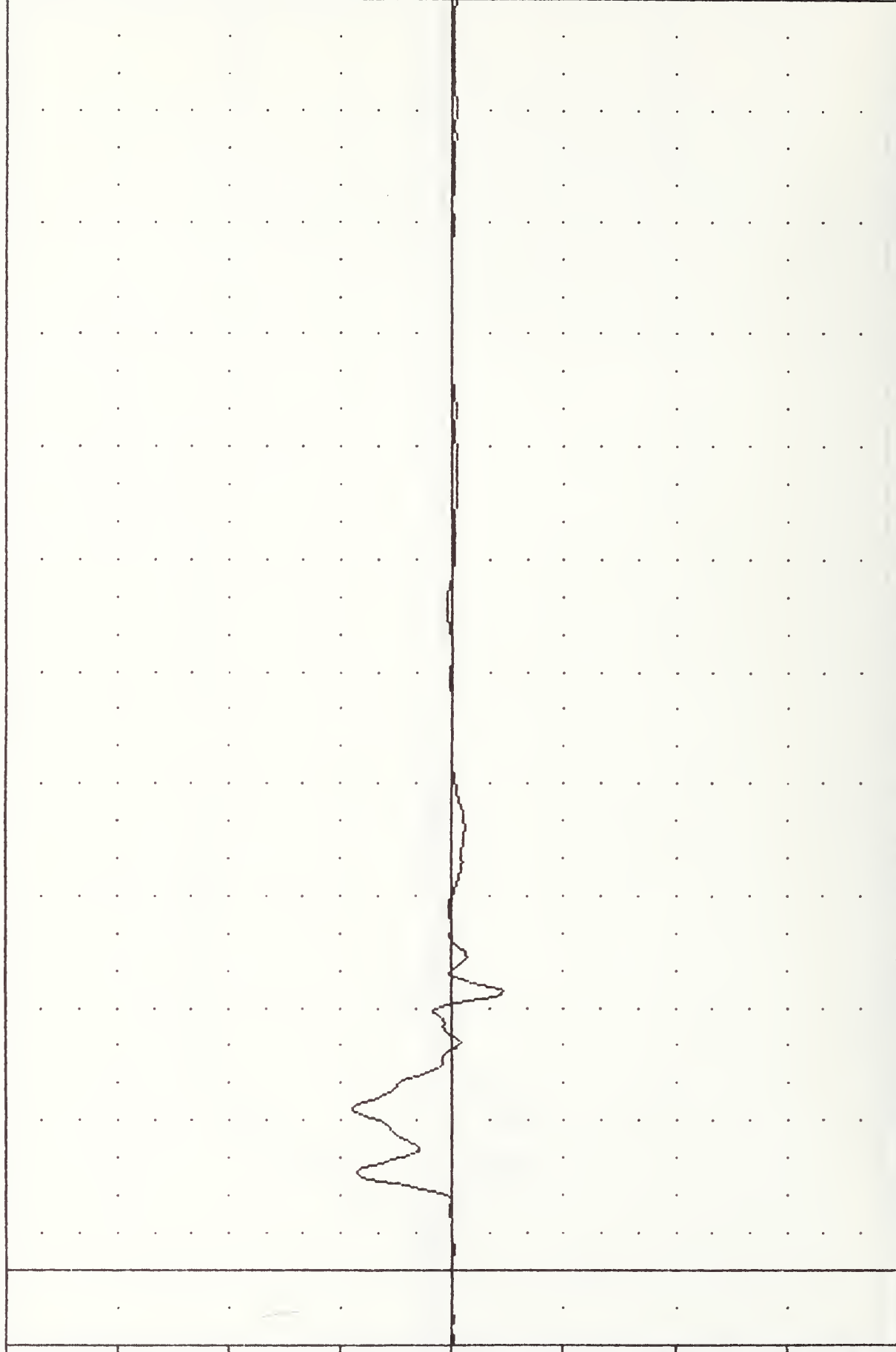
LLRYGO

FILTER = HSRI 136/ 188/ -50

MIN. MAX VALUES = -27.22 74.37

53.38 43.13

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV

LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y-AXIS REDUNDANT ACCELERATION

VRTC 910627

LEFT SIDE IMPACT

91178

LLRYV4

FILTER = ALPF 1650/ 5214/ -40

MIN, MAX VALUES = -0.01 14.25

26.03 71.00

40.00

30.00

20.00

10.00

0.00

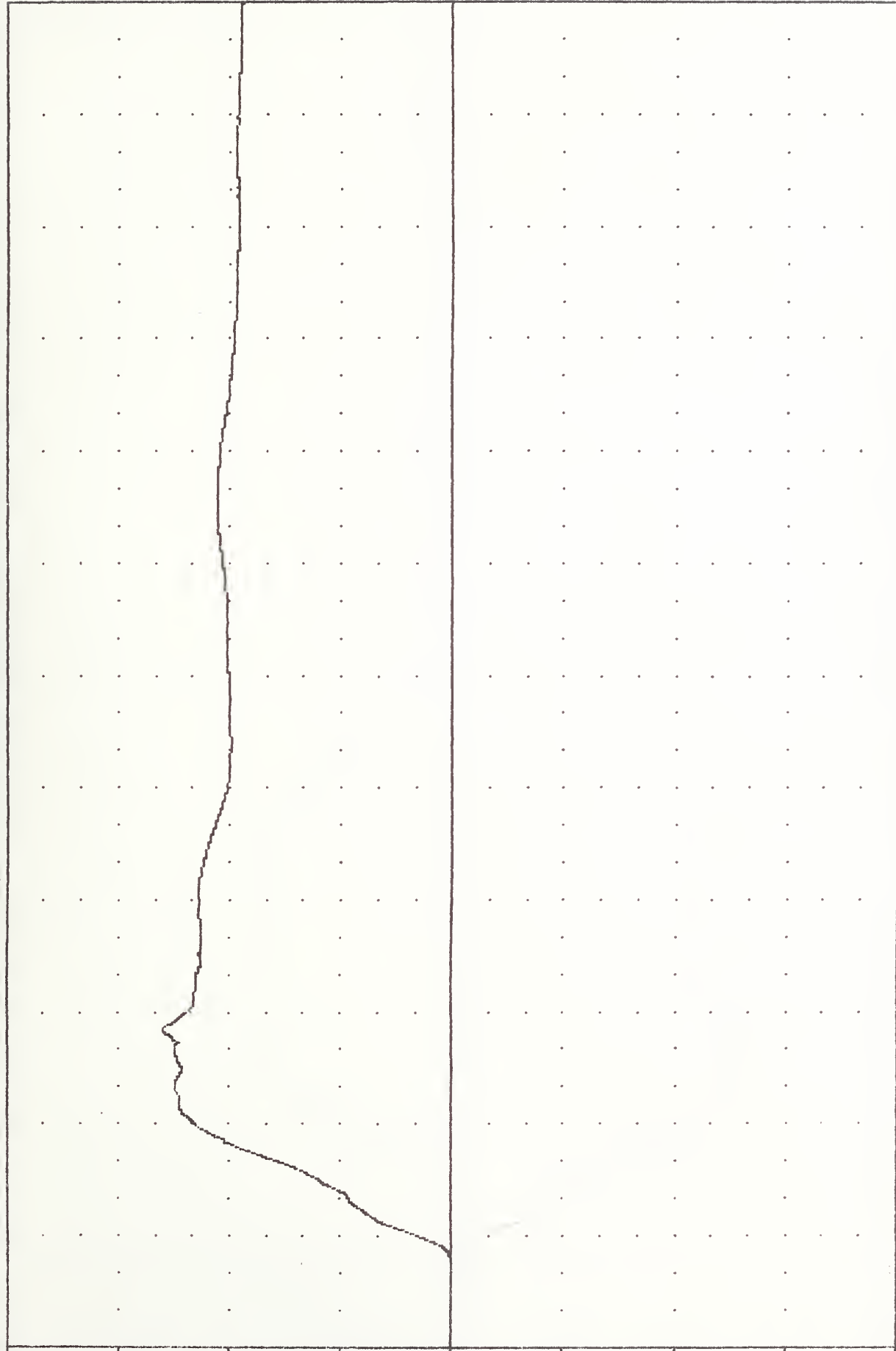
-10.00

-20.00

-30.00

-40.00

VELOCITY (MPH)



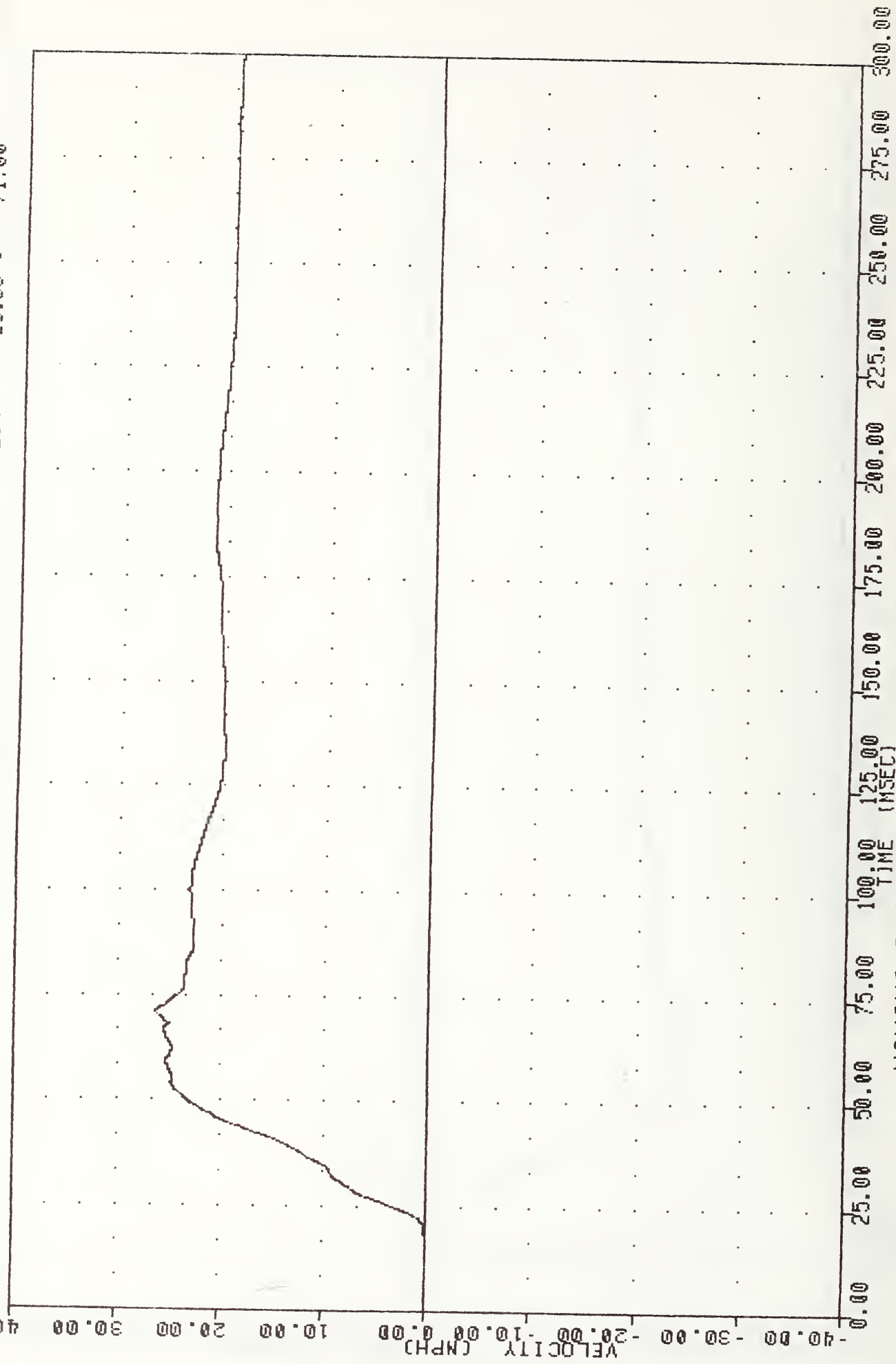
0.00 25.00 50.00 75.00 100.00 125.00 150.00 175.00 200.00 225.00 250.00 275.00 300.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y-AXIS VELOCITY

VRTC , 910627
LEFT SIDE IMPACT
91178
LLRYV0

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 0.00 26.36 71.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER LEFT LOWER THORAX RIB Y-AXIS REDUNDANT VELOCITY

VRTC , 910627

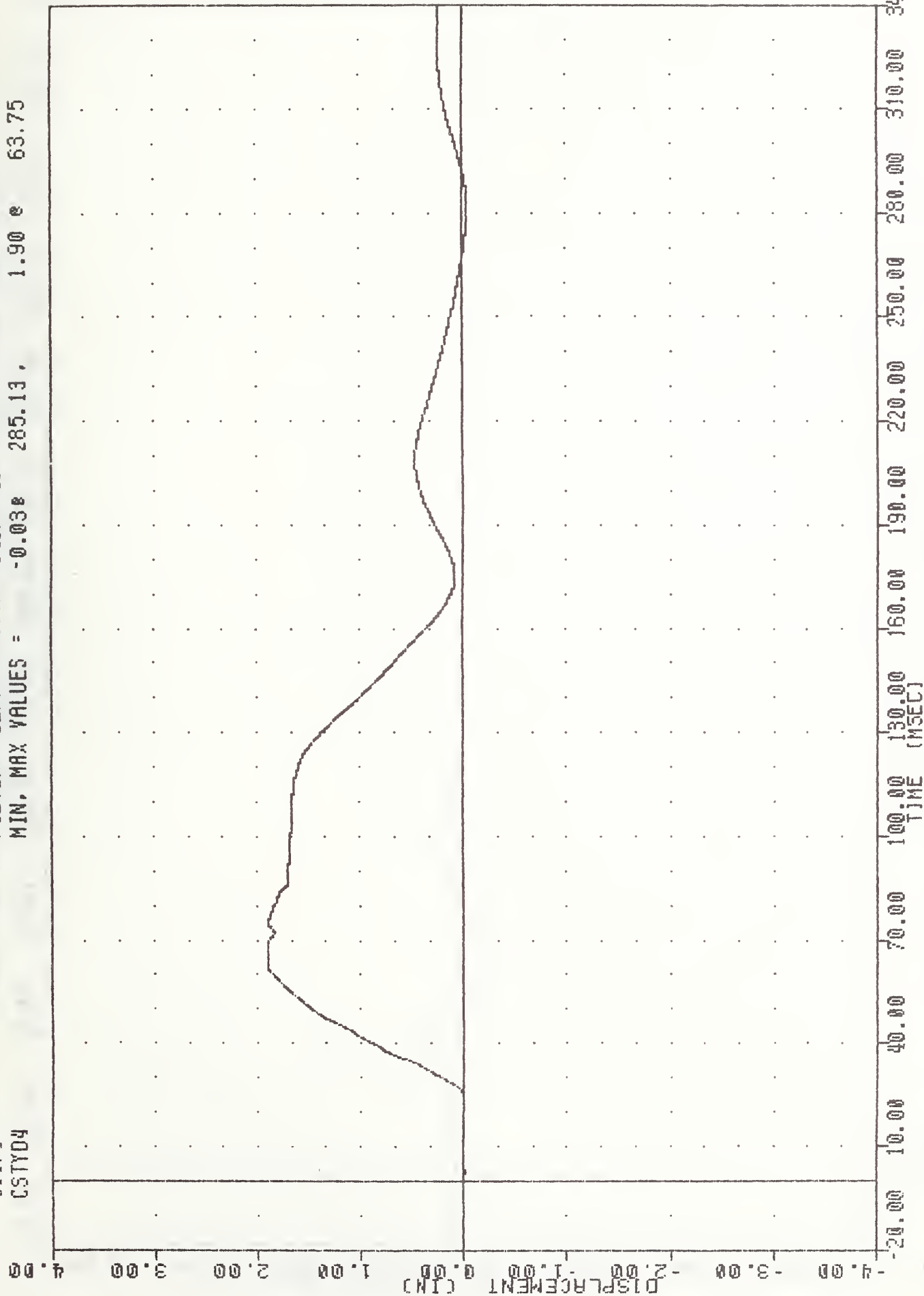
LEFT SIDE IMPACT

91178

CSTYD4

FILTER = BLPF 300/ 949/ -40

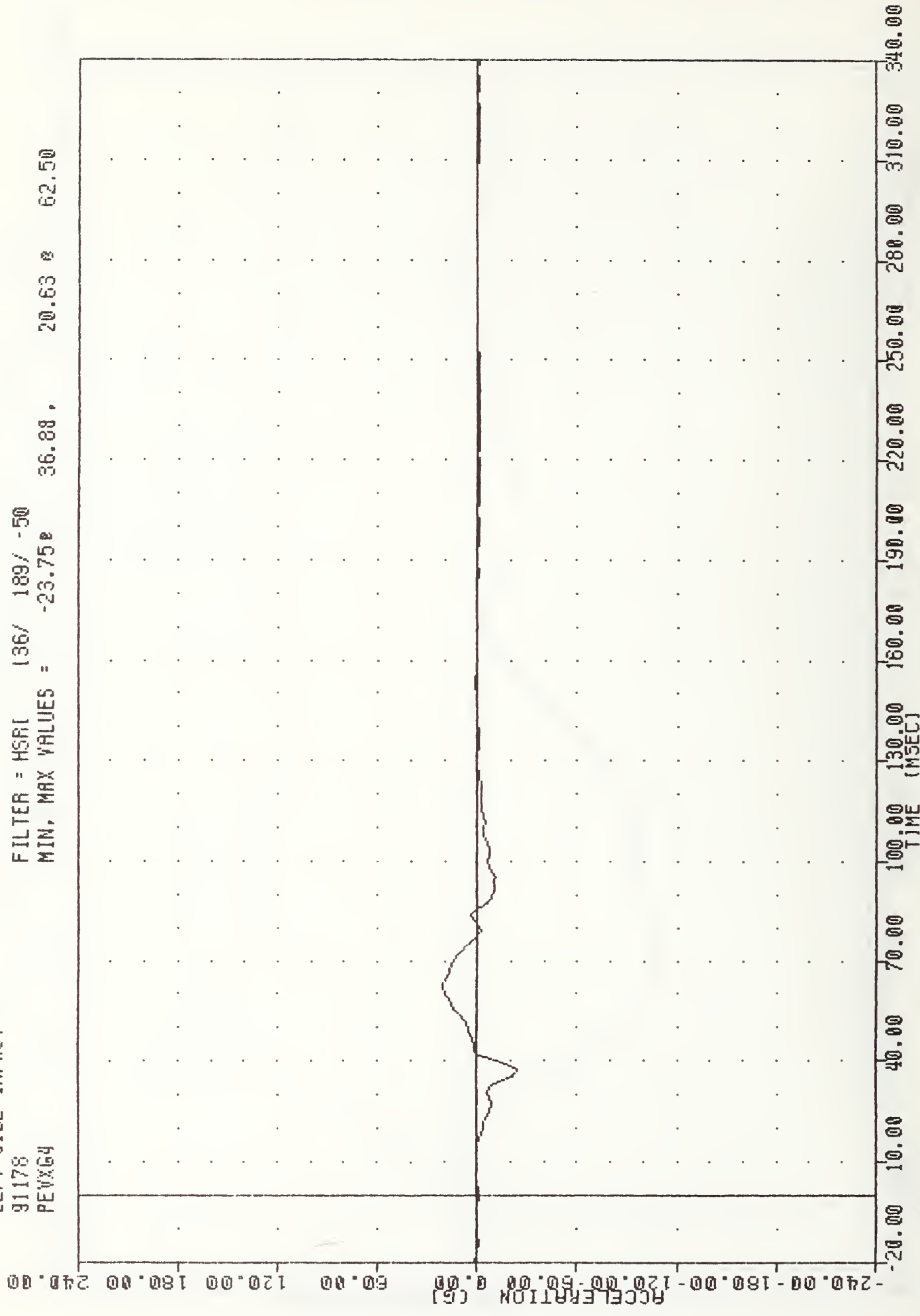
MIN. MAX VALUES = -0.03e 285.13 , 1.90 e 63.75



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LASV
LEFT REAR PASSENGER CHEST DISPLACEMENT

VRTC , 910627
LEFT SIDE IMPACT
91178
PEVXG4

FILTER = HSRI 136/ 189/ -50
MIN, MAX VALUES = -23.75 36.88 , 20.63 62.50



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER PELVIS X-AXIS ACCELERATION

VRIC , 910527

LEFT SIDE IMPACT

91178

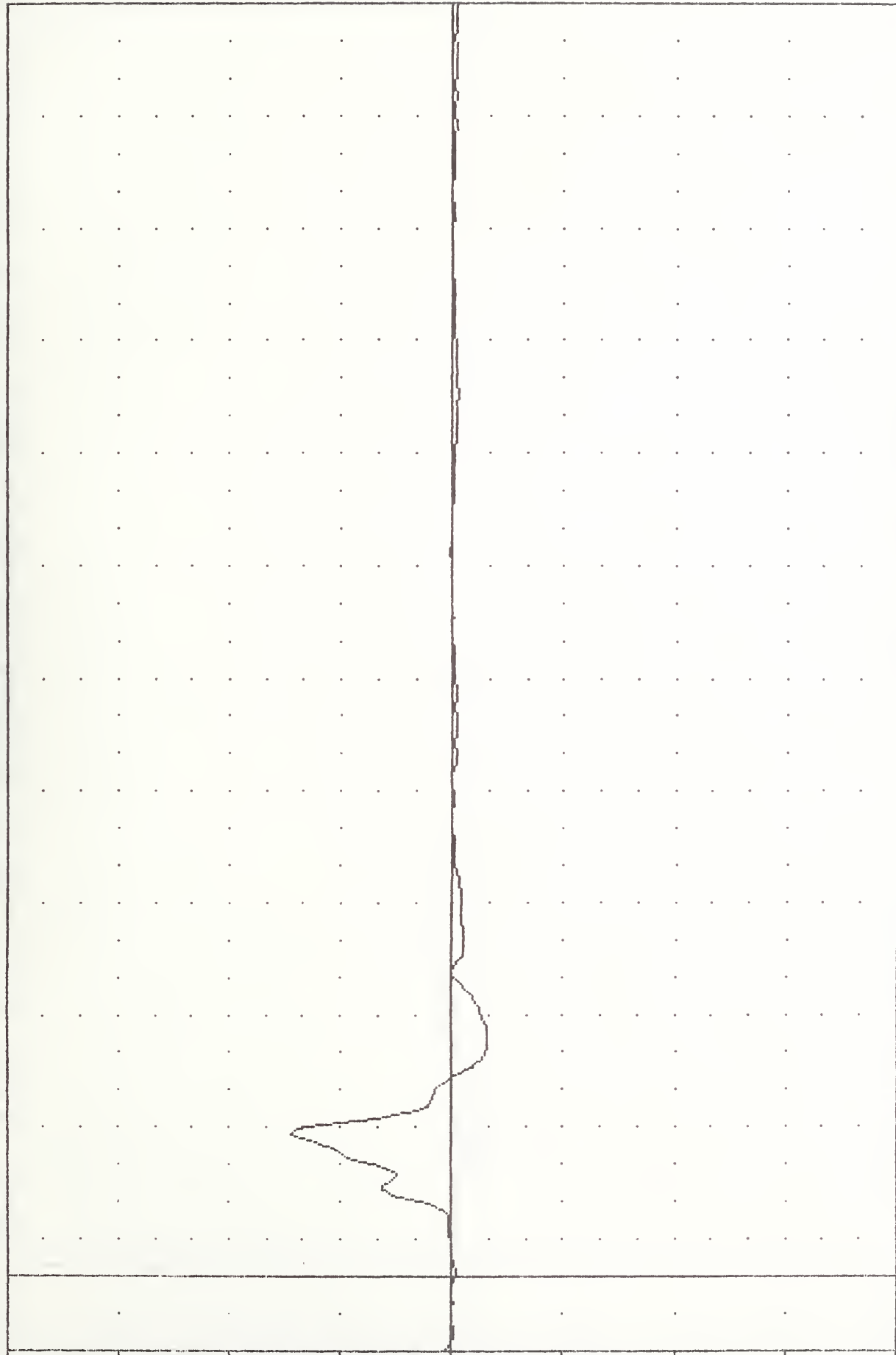
PEVY64

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = -19.34 64.38 ,

86.26 38.13

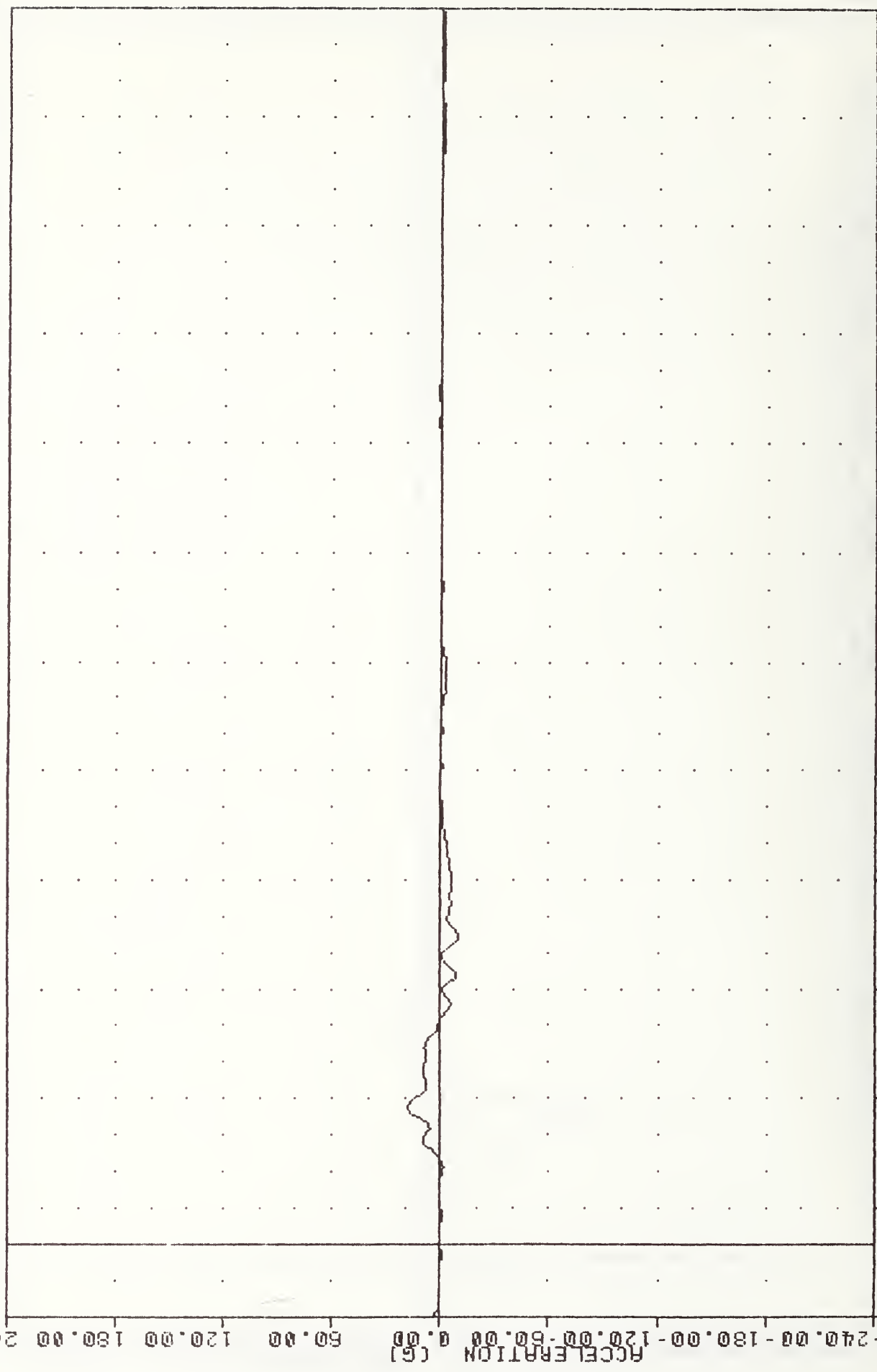
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER PELVIS Y-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
PEVZ64

FILTER = HSAI 136/ 189/ -50
MIN. MAX VALUES = -10.11e 84.38, 18.64 e 37.50



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER PELVIS Z-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

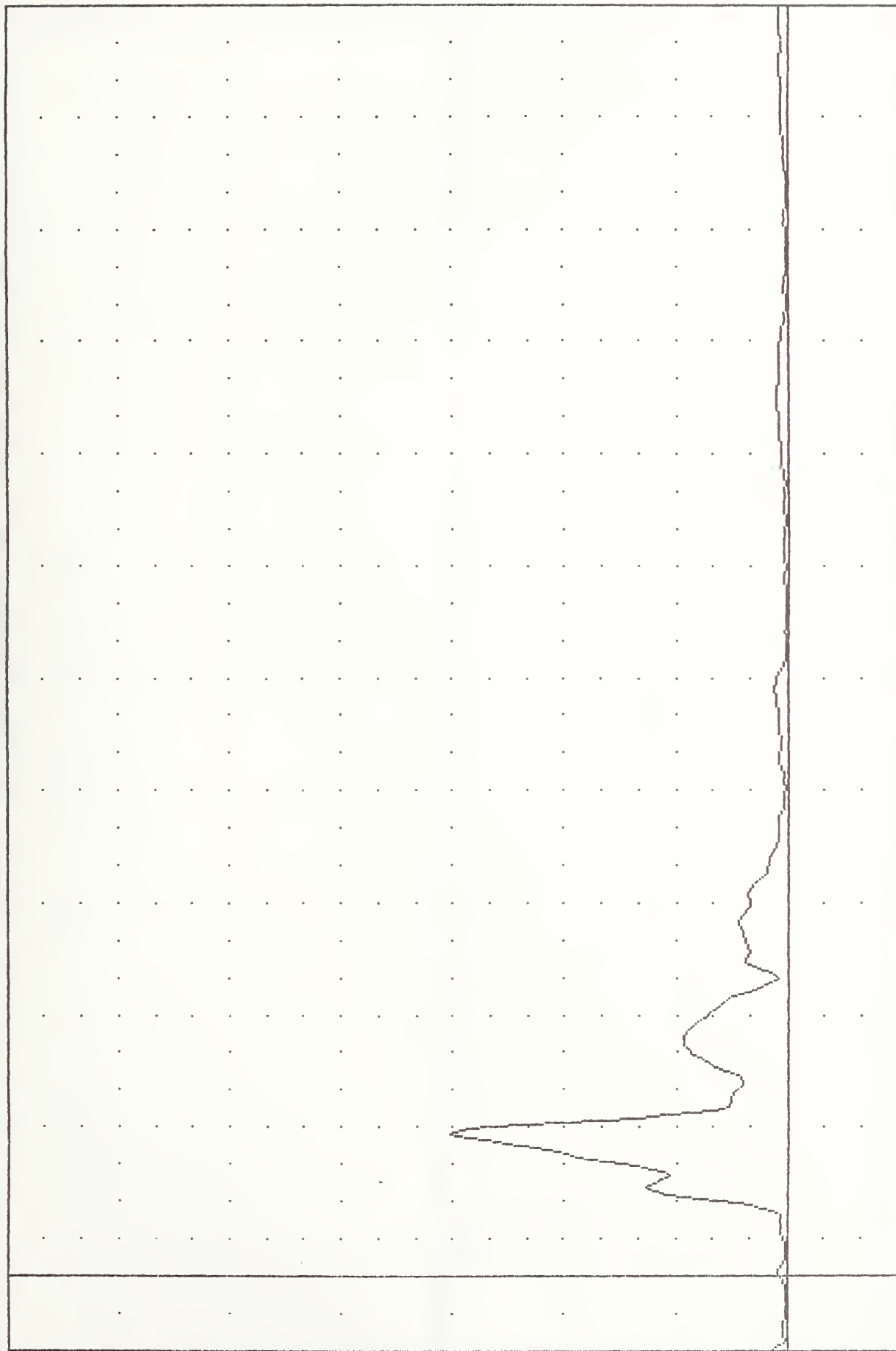
91178

PEVRG4

FILTER = HSRI 136/ 189/ -50

MIN. MAX VALUES = 0.16e 5.00 , 90.74 e 38.13

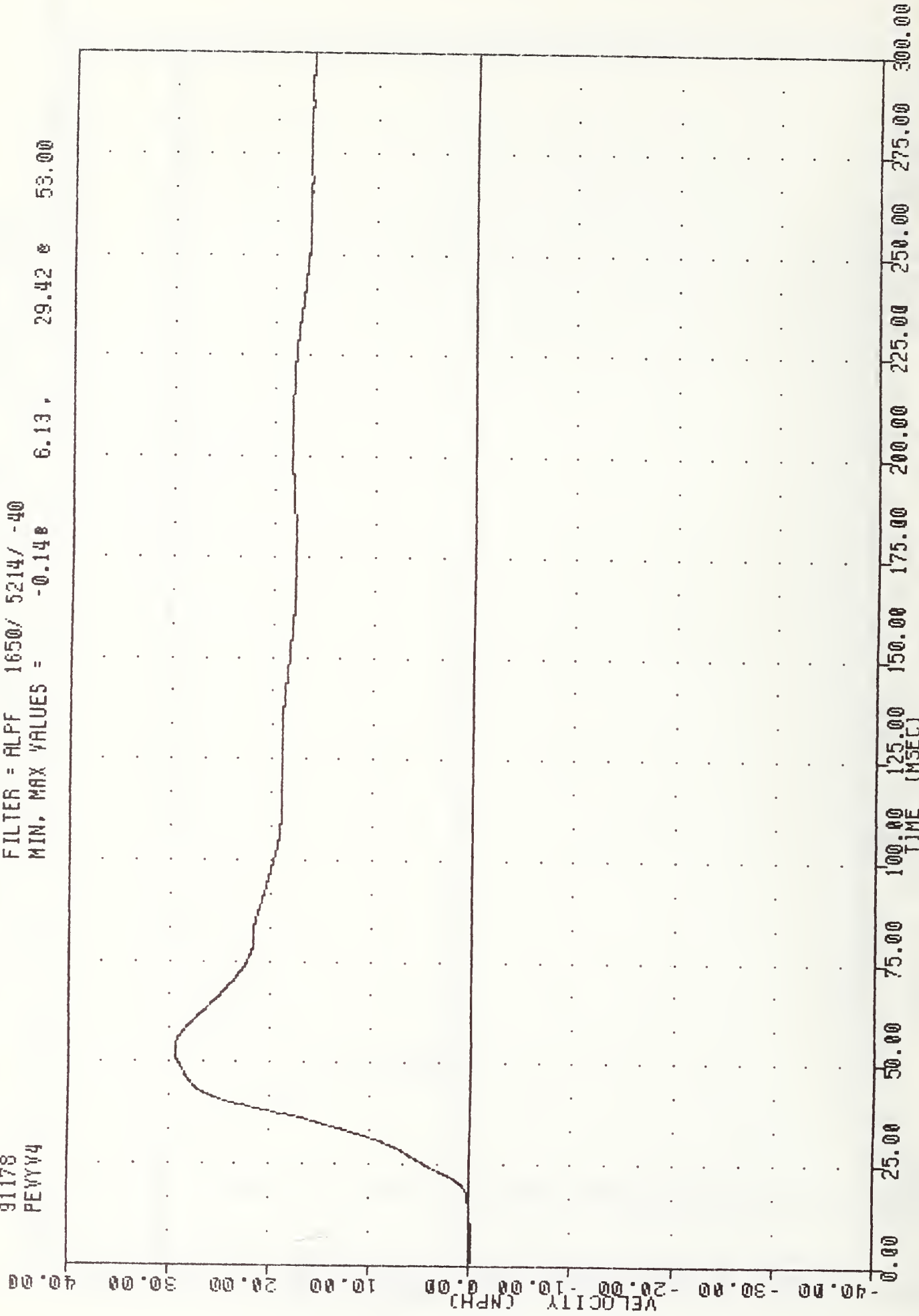
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER PELVIS RESULTANT ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
PEVYV4

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -0.148 6.13, 29.42 & 53.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
LEFT REAR PASSENGER PELVIS Y-AXIS VELOCITY

VRTC . 910627

LEFT SIDE IMPACT

91178

RFSXG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -4.49e 23.50 ,

4.59 e 64.38

50.00

45.00

30.00

15.00

0.00

-15.00

-30.00

-45.00

-60.00

ACCELERATION (G)

-20.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSW
VEHICLE RIGHT FRONT SILL X-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

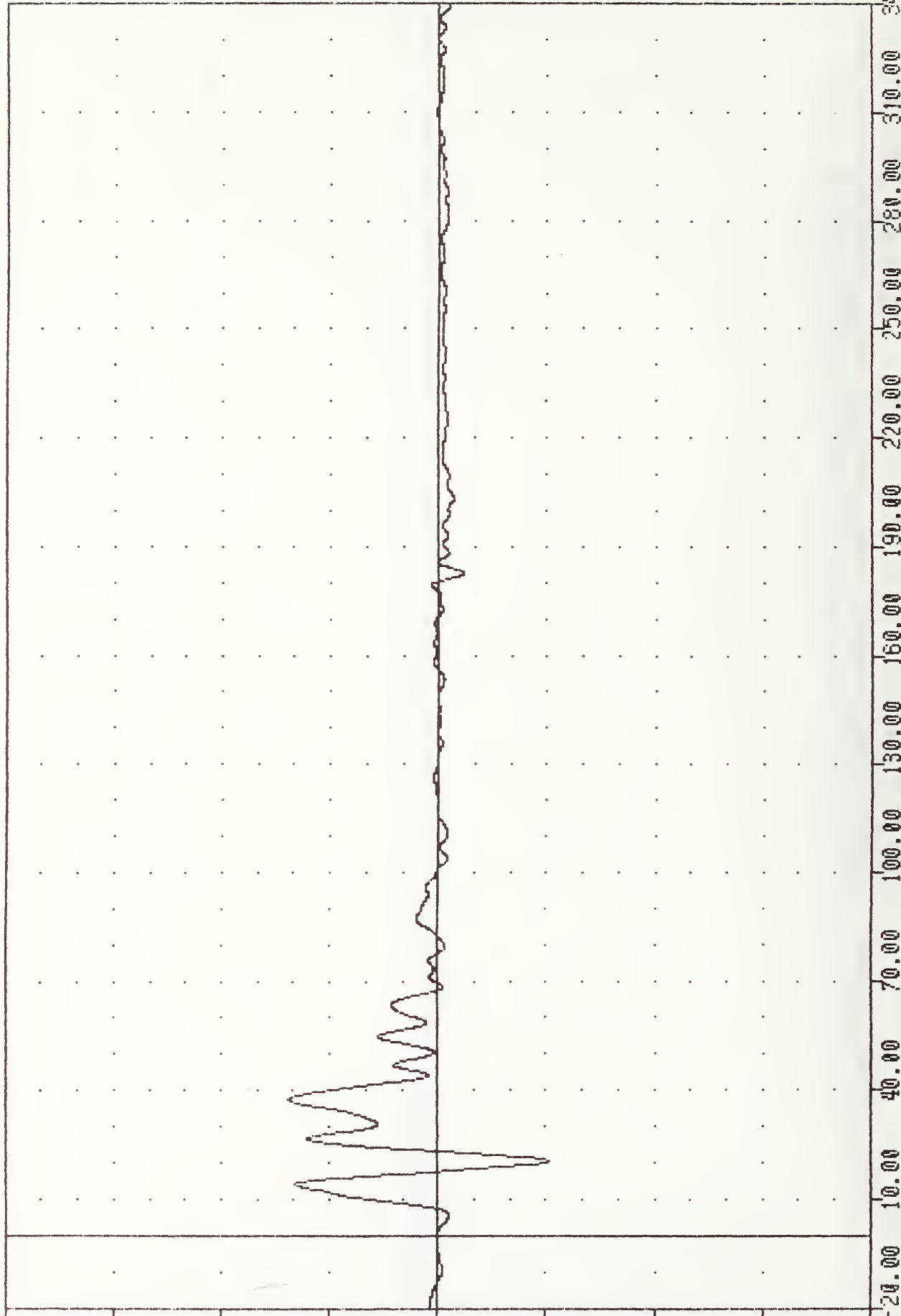
RFSYG

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -15.480

20.50 , 20.62 0 37.50

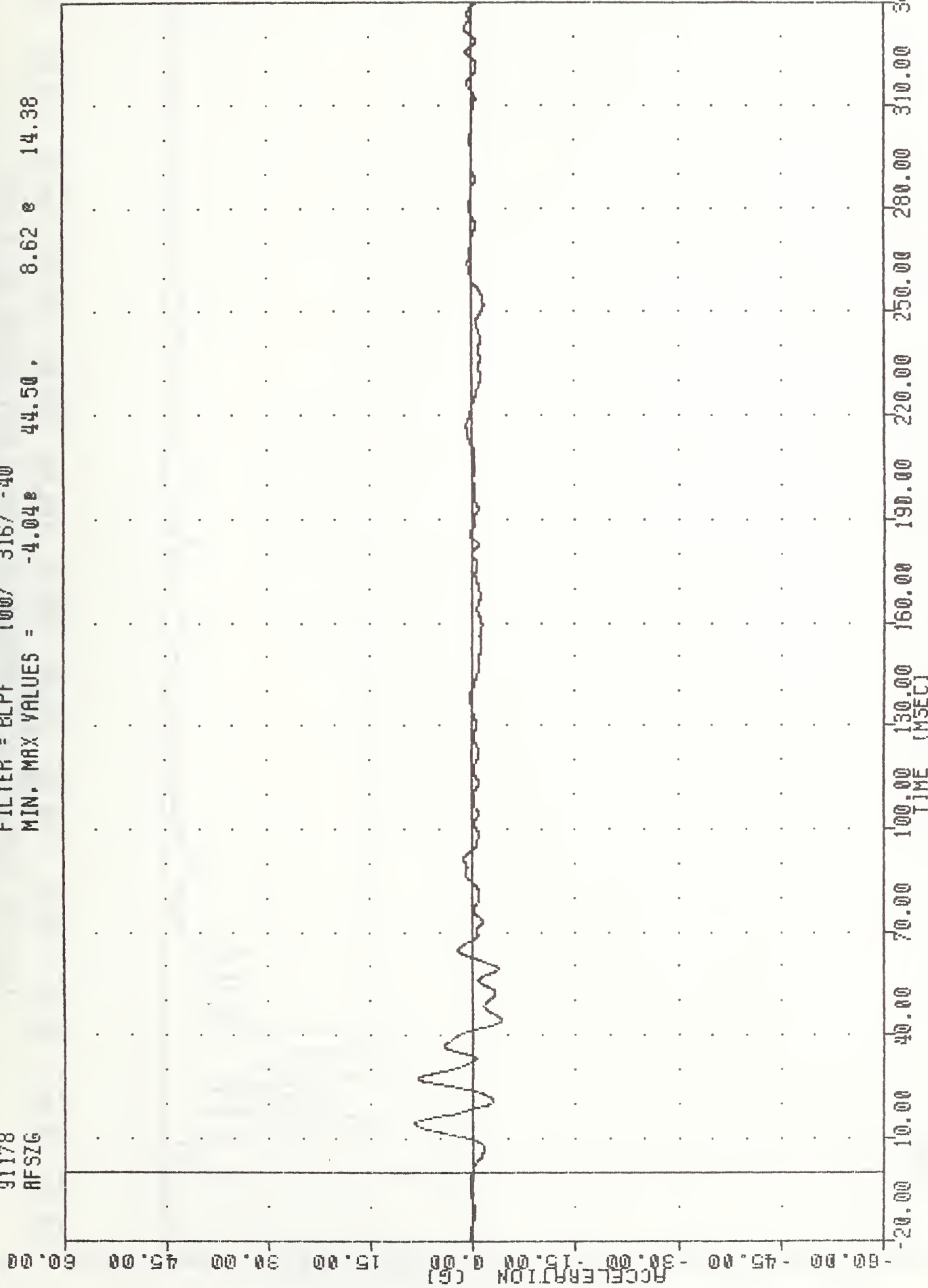
ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE RIGHT FRONT SILL Y-AXIS ACCELERATION

VRIC , 910627
LEFT SIDE IMPACT
91178
AFS2G

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -4.04e 44.50 , 8.62 e 14.38



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE RIGHT FRONT SILL Z-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

AFSRG

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.038

306.38,

21.96

14.25

70.00

60.00

50.00

40.00

30.00

20.00

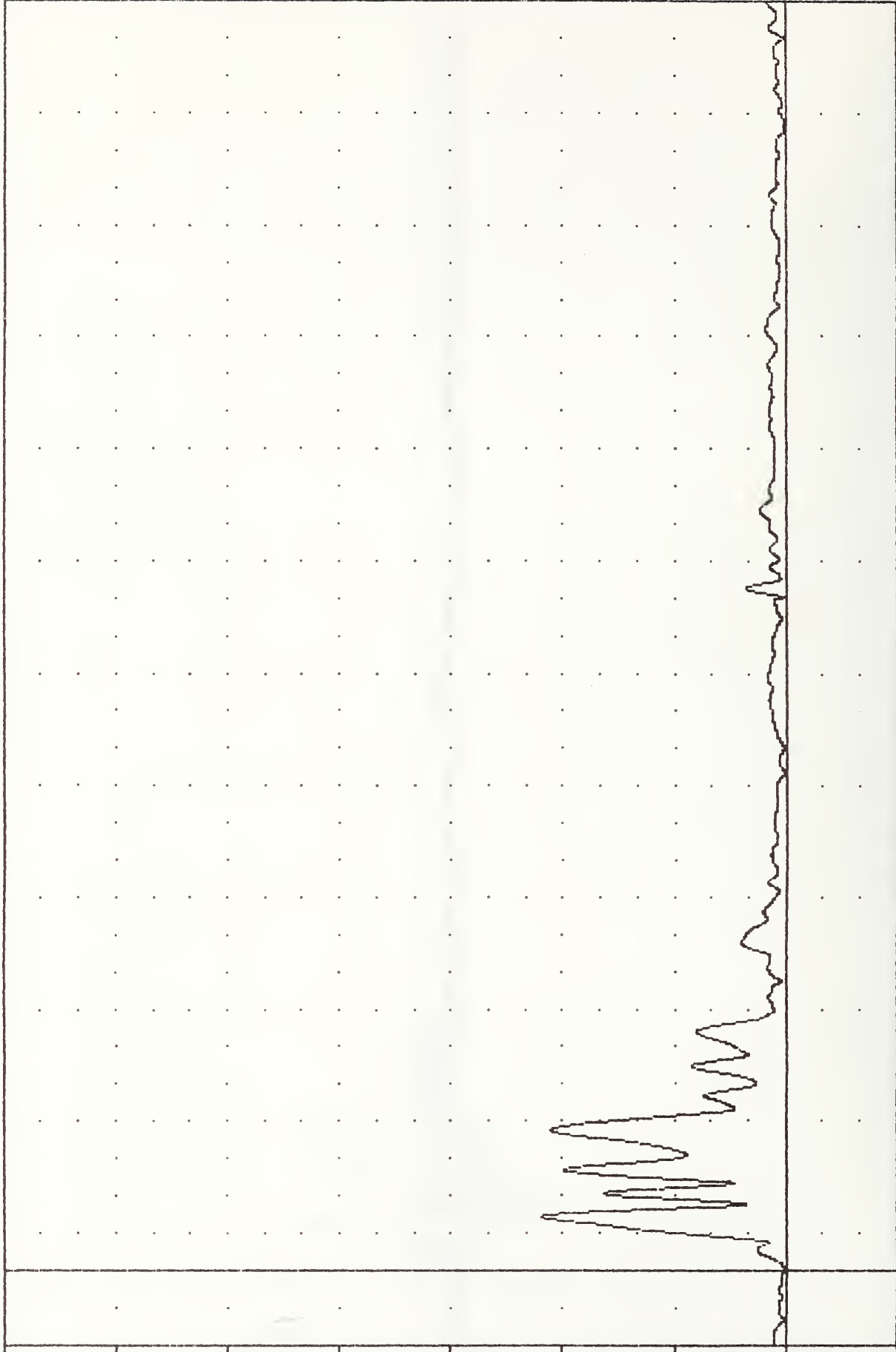
10.00

0.00

-10.00

-20.00

ACCELERATION (G)



-20.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

TIME (MSEC)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE RIGHT FRONT SILL RESULTANT ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

RFSYV

FILTER = ALPF 1650/ 5214/ -40

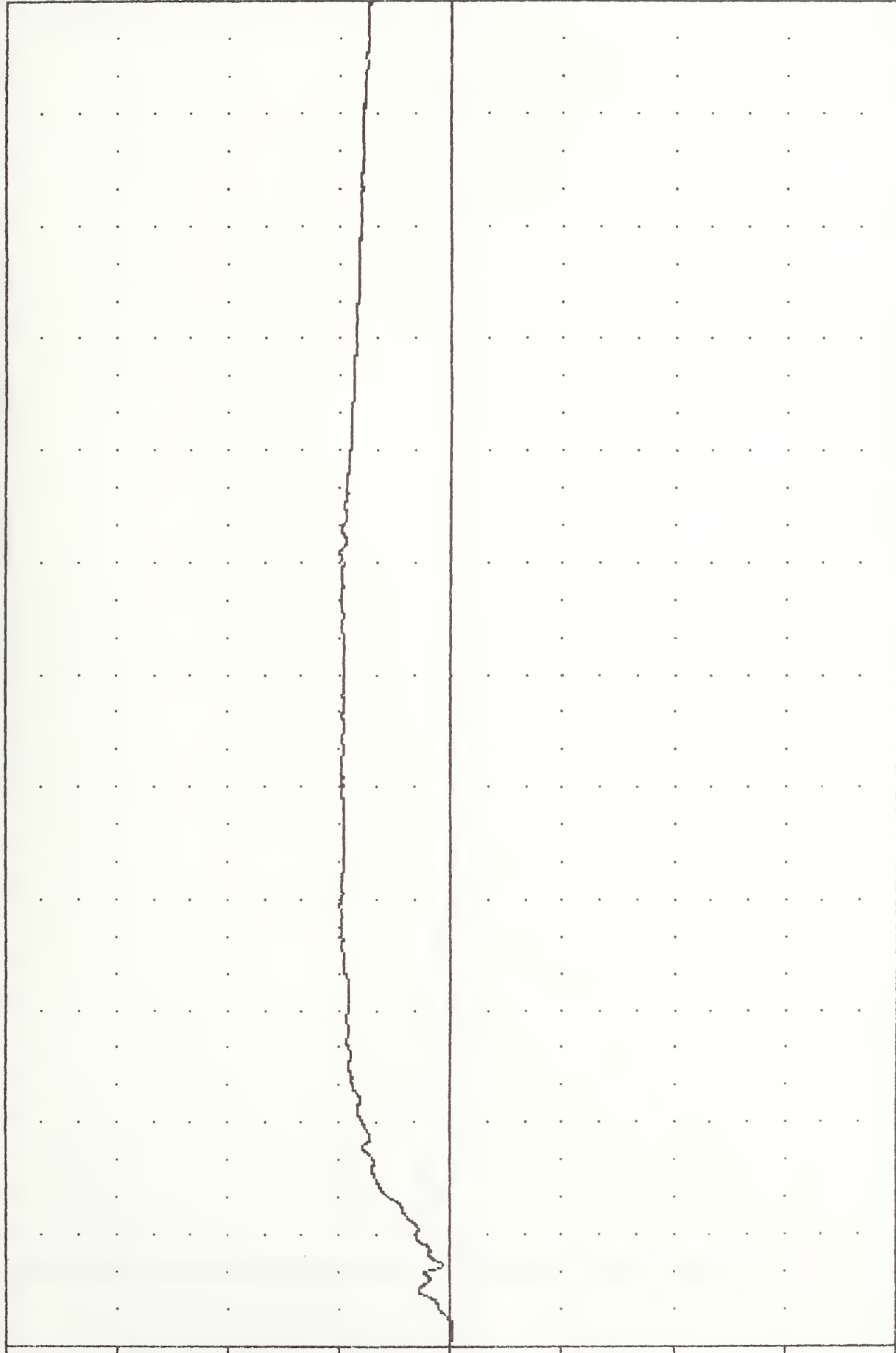
MIN. MAX VALUES = -0.158

3.63,

9.94 @

177.25

VELOCITY (MPH)

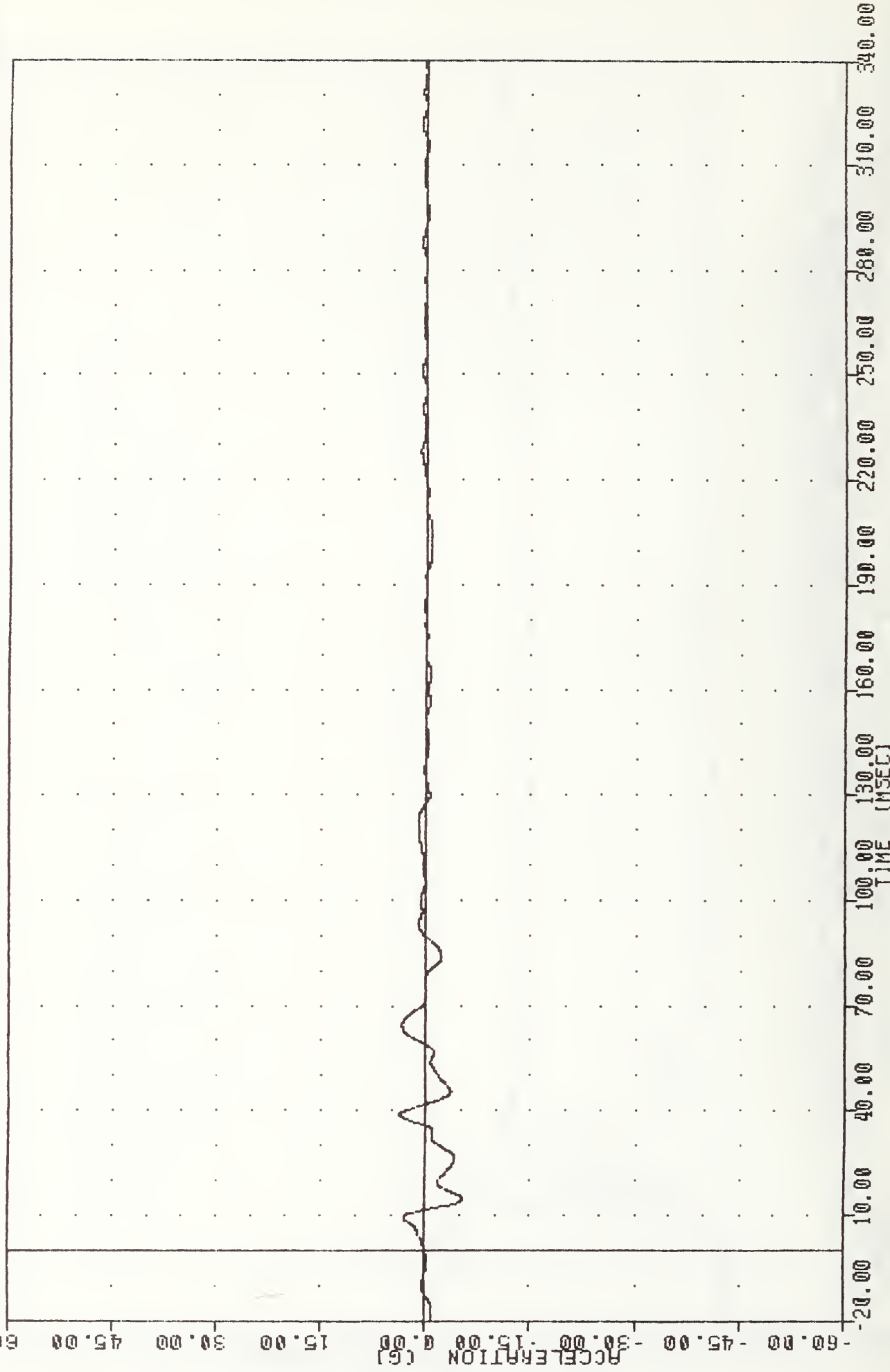


0.00 25.00 50.00 75.00 100.00 125.00 150.00 175.00 200.00 225.00 250.00 275.00 300.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE RIGHT FRONT SILL Y-AXIS VELOCITY

VRTC
LEFT SIDE IMPACT
91178
ARSXG

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -5.368 14.63, 3.77 38.75



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSW
VEHICLE RIGHT REAR SILL X-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

91178

RRSYG

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES =

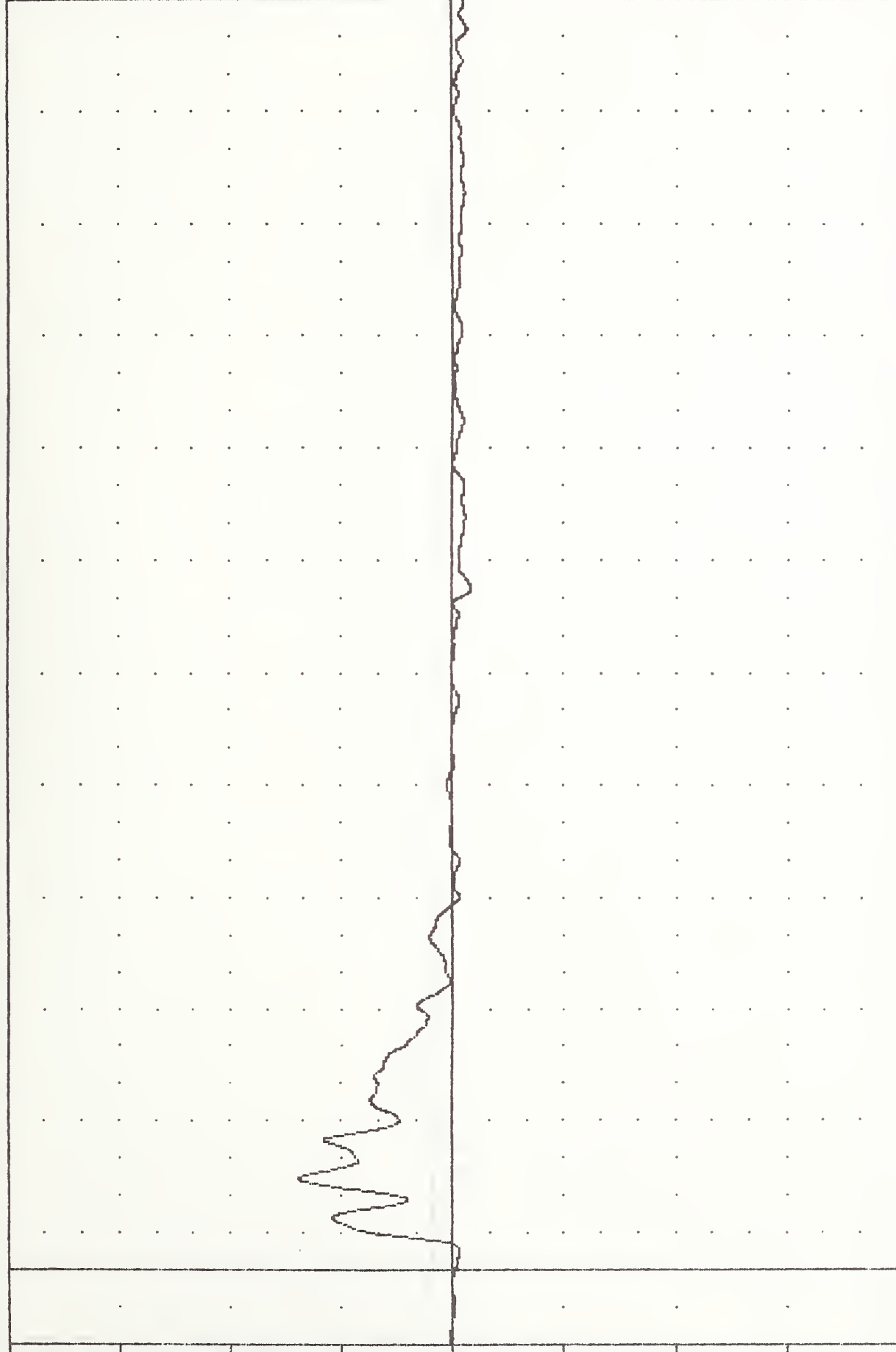
-2.48

182.38 ,

20.77

24.50

ACCELERATION (G)

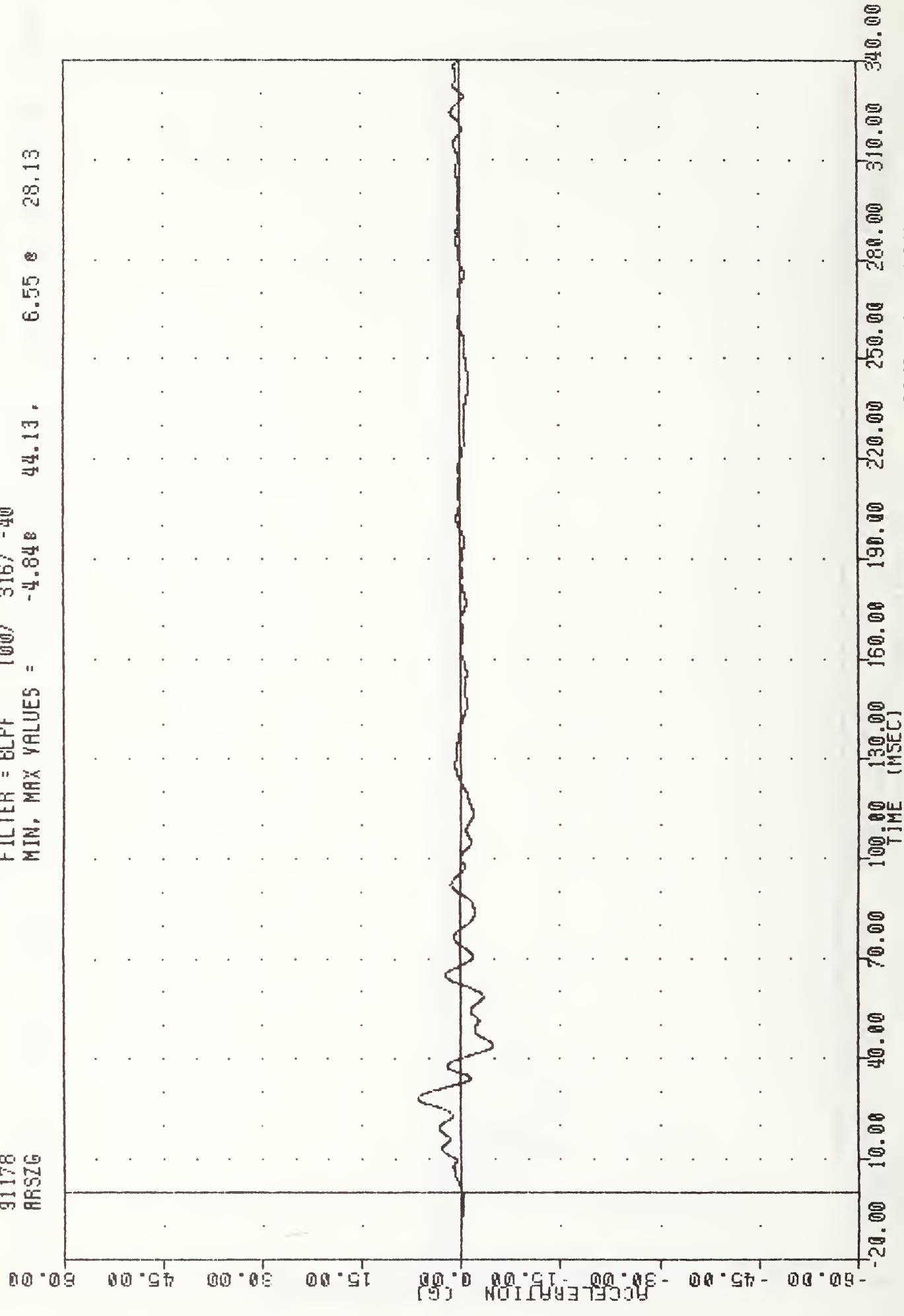


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE RIGHT REAR SILL Y-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
RRSZG

FILTER = BLPF 100/ 316/ -40
MIN, MAX VALUES = -4.848 44.13, 6.55 28.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE RIGHT REAR SILL Z-AXIS ACCELERATION

VRIC . 910627

LEFT SIDE IMPACT

91178

AR3RG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = 0.128 139.75, 21.23 24.63

70.00

60.00

50.00

40.00

30.00

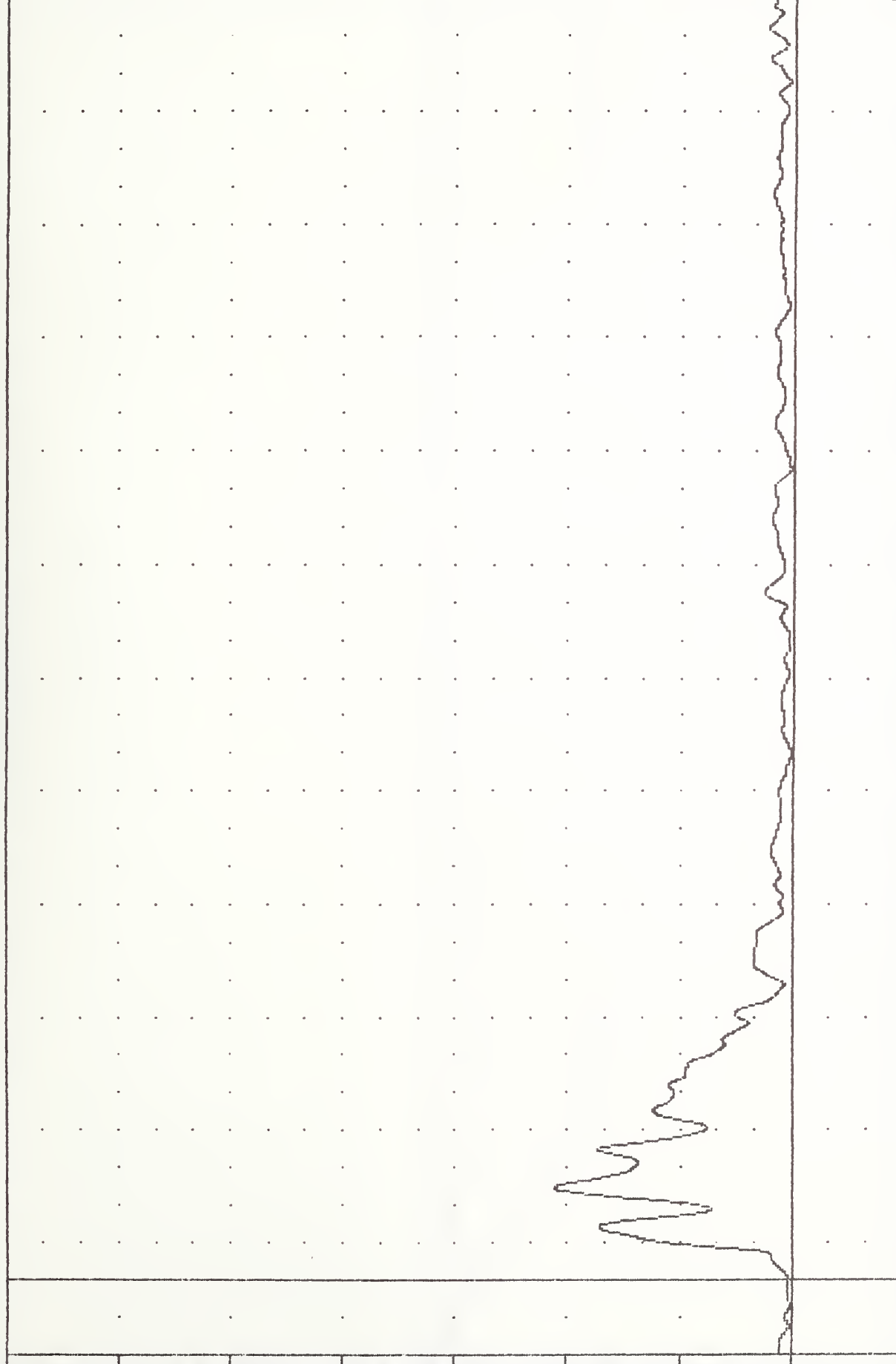
20.00

10.00

0.00

-10.00

ACCELERATION (G)



-10.00

0.00

10.00

40.00

70.00

100.00

130.00

160.00

190.00

220.00

250.00

280.00

310.00

340.00

TIME (MSEC)

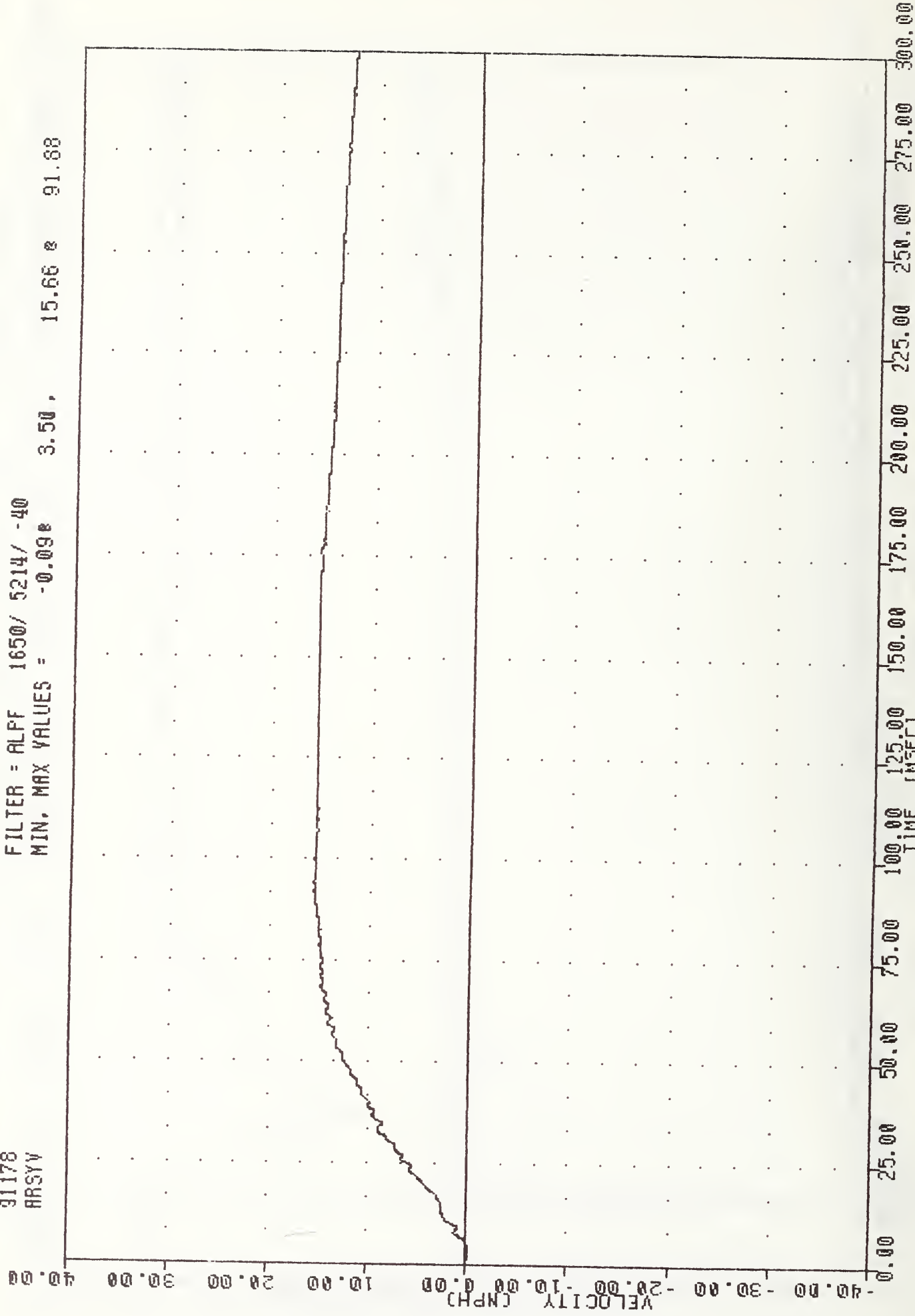
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV

VEHICLE RIGHT REAR SILL RESULTANT ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT

91178
ARSV

FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = -0.098 3.50 , 15.66 2 91.88



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE RIGHT REAR SILL Y-AXIS VELOCITY

VRIC , 910627

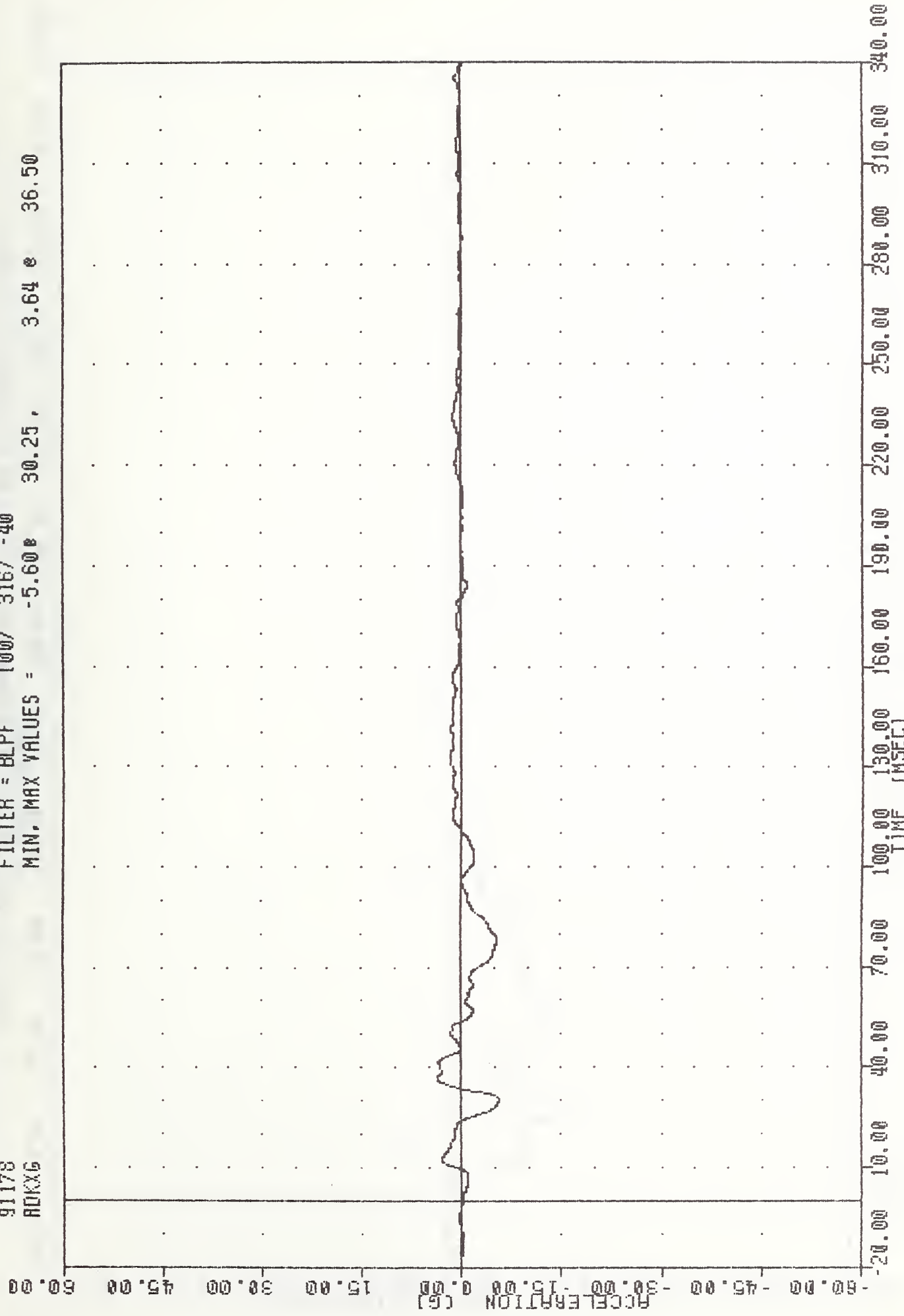
LEFT SIDE IMPACT

91178

ADKXG

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -5.60 30.25 , 3.64 36.50



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE REAR DECK X-AXIS ACCELERATION

VRTC , 910627

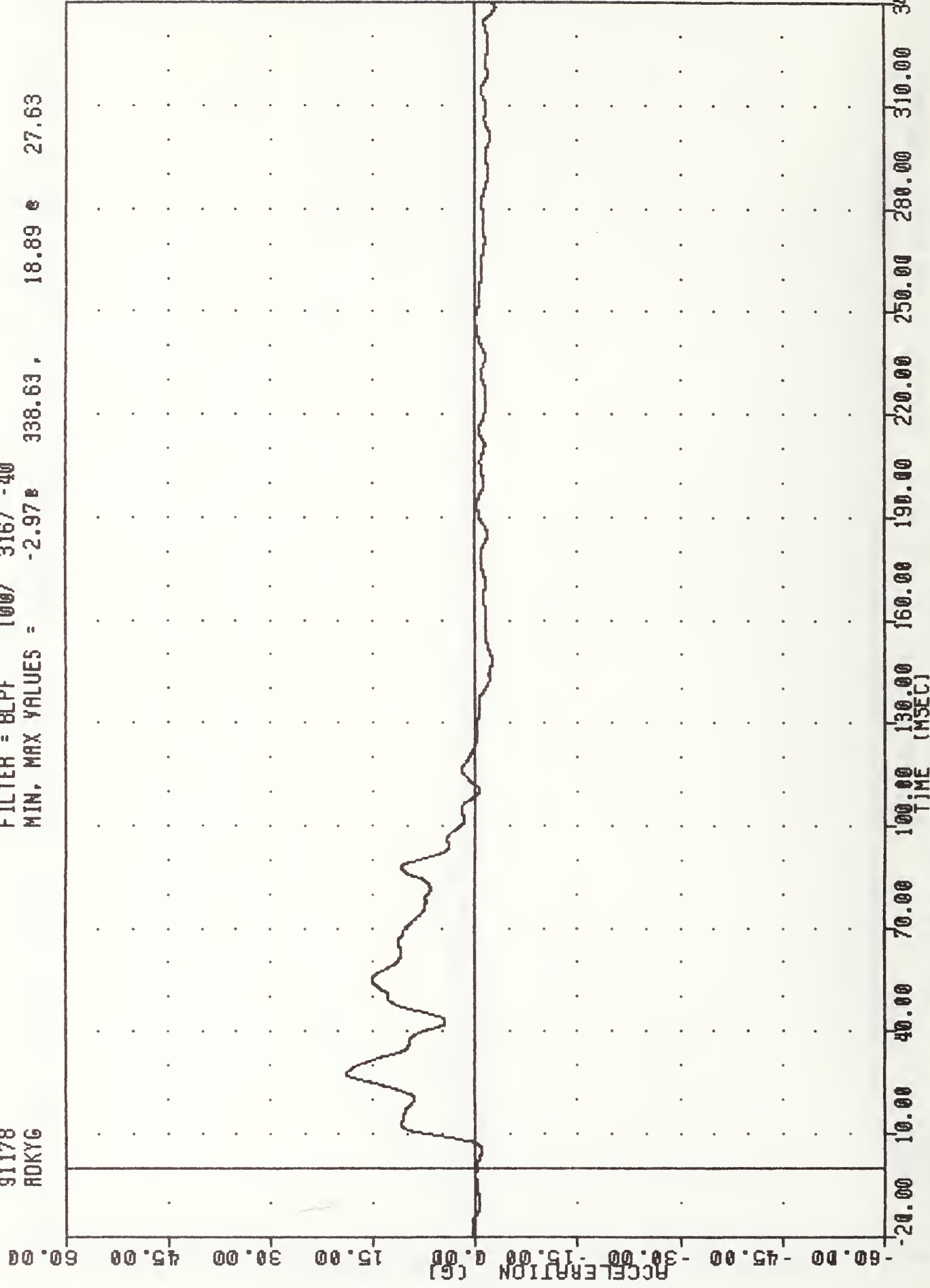
LEFT SIDE IMPACT

91178

RDKYG

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = -2.97 338.63, 18.89 27.63



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE REAR DECK Y-AXIS ACCELERATION

VRTC 910627

LEFT SIDE IMPACT

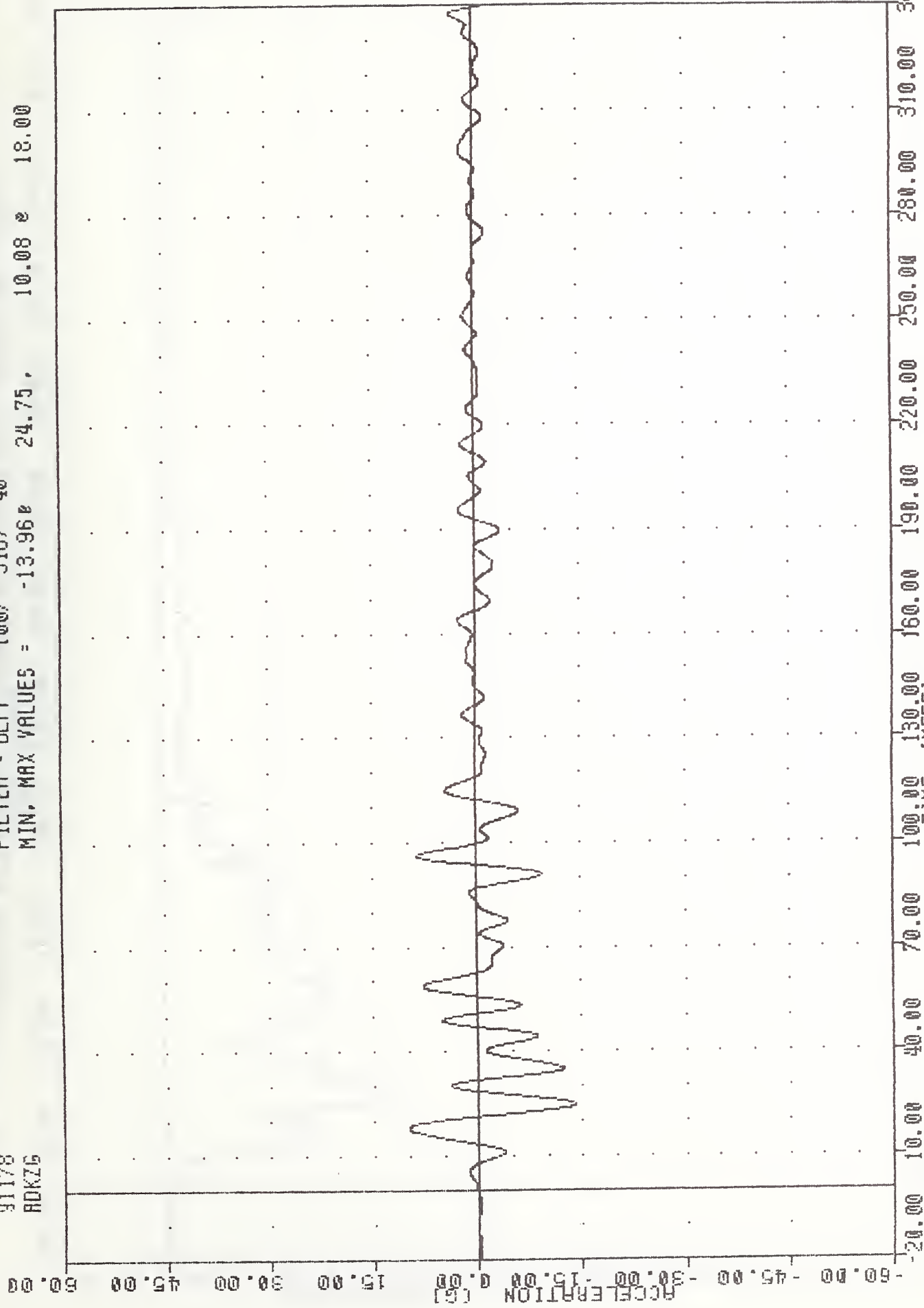
91178

ADKZG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -13.96 24.75

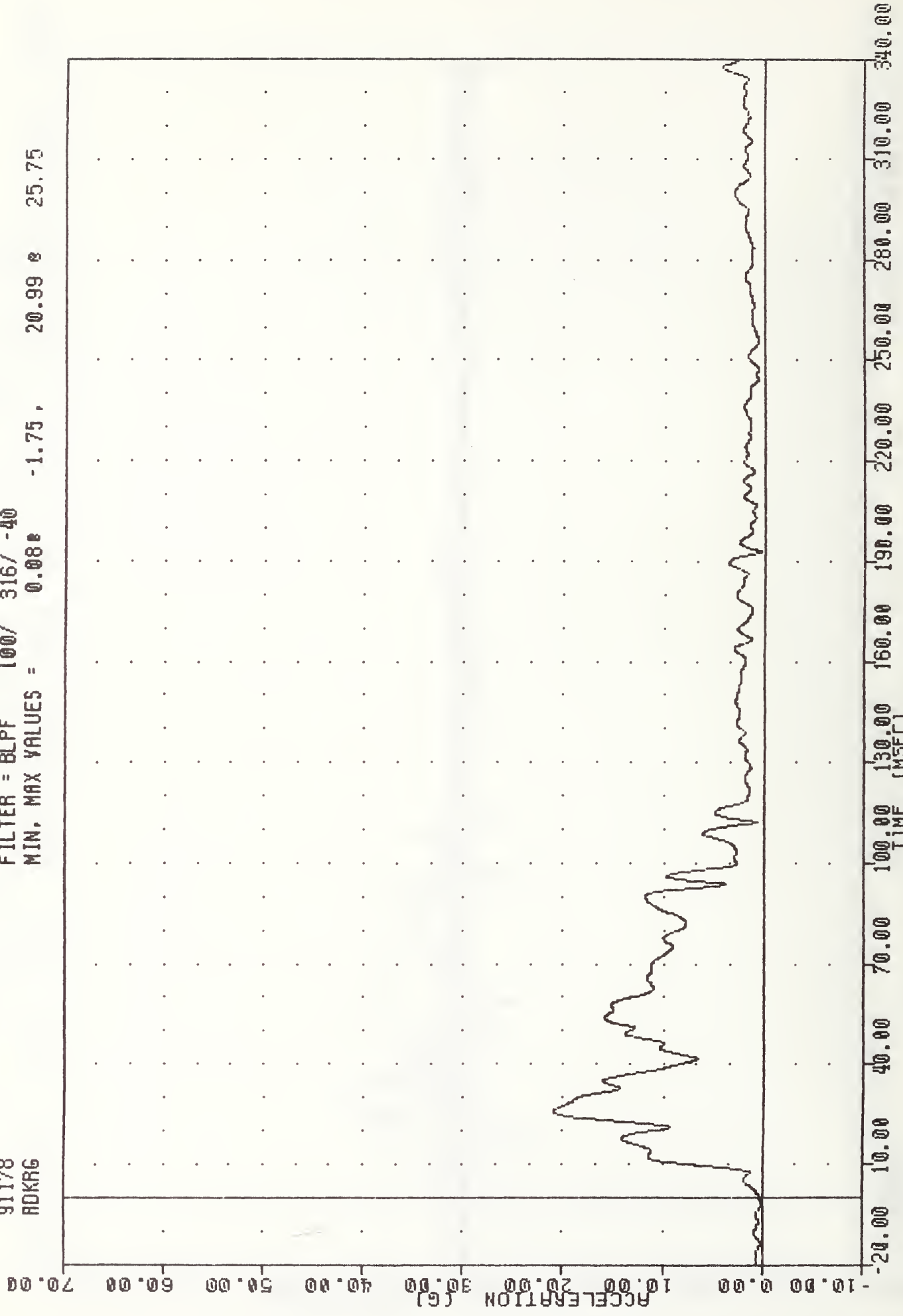
10.08 18.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE REAR DECK Z-AXIS ACCELERATION

VRTC .910627
LEFT SIDE IMPACT
91178
ADKRG

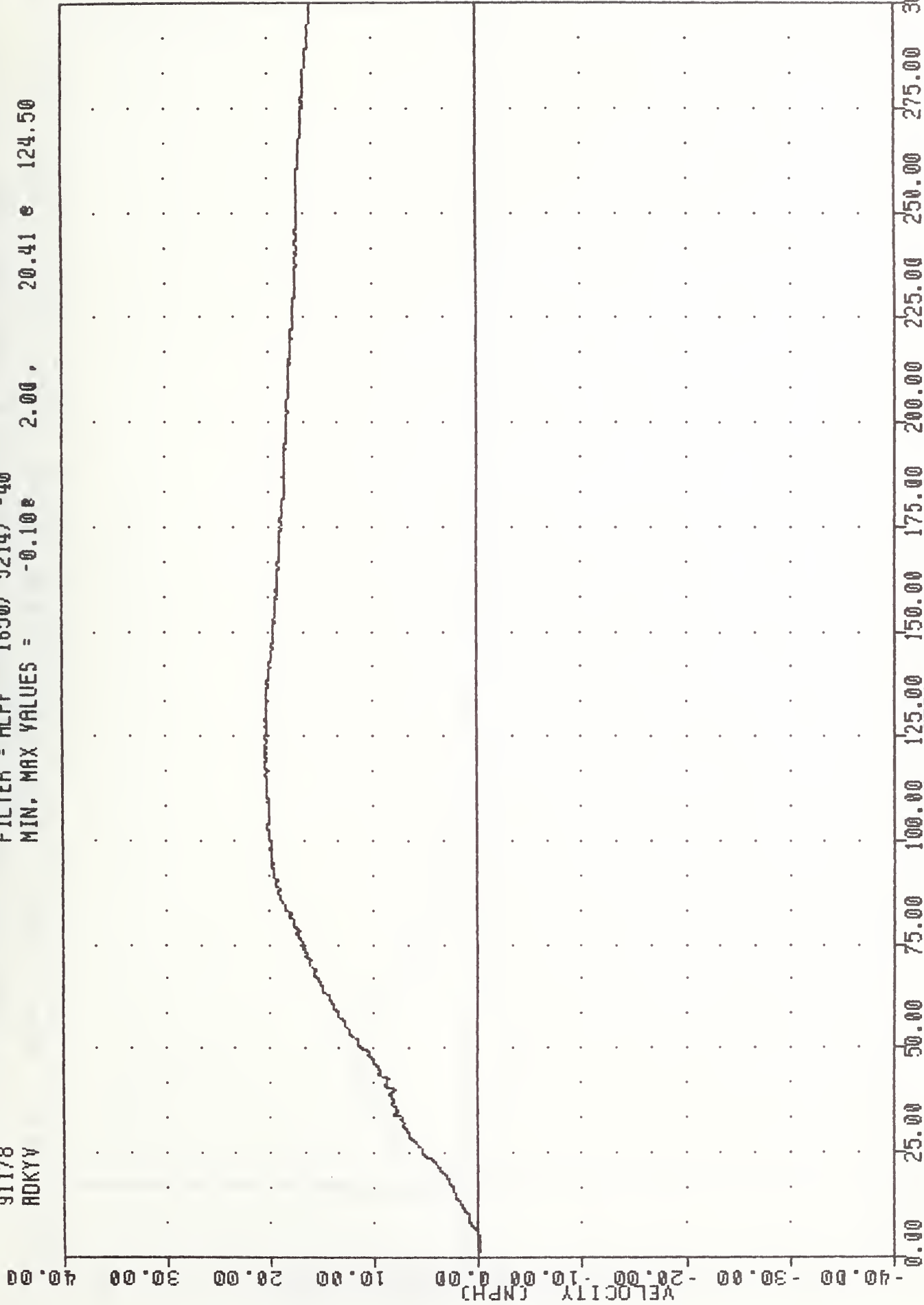
FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = 0.08 -1.75, 20.99 25.75



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
VEHICLE REAR DECK RESULTANT ACCELERATION

VRTC , 910627
 LEFT SIDE IMPACT
 91178
 ADKVV

FILTER = ALPF 1650/ 5214/ -40
 MIN. MAX VALUES = -0.10e 2.00. 20.41 e 124.50



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
 VEHICLE REAR DECK Y-AXIS VELOCITY

VRTC , 910627

LEFT SIDE IMPACT

91178

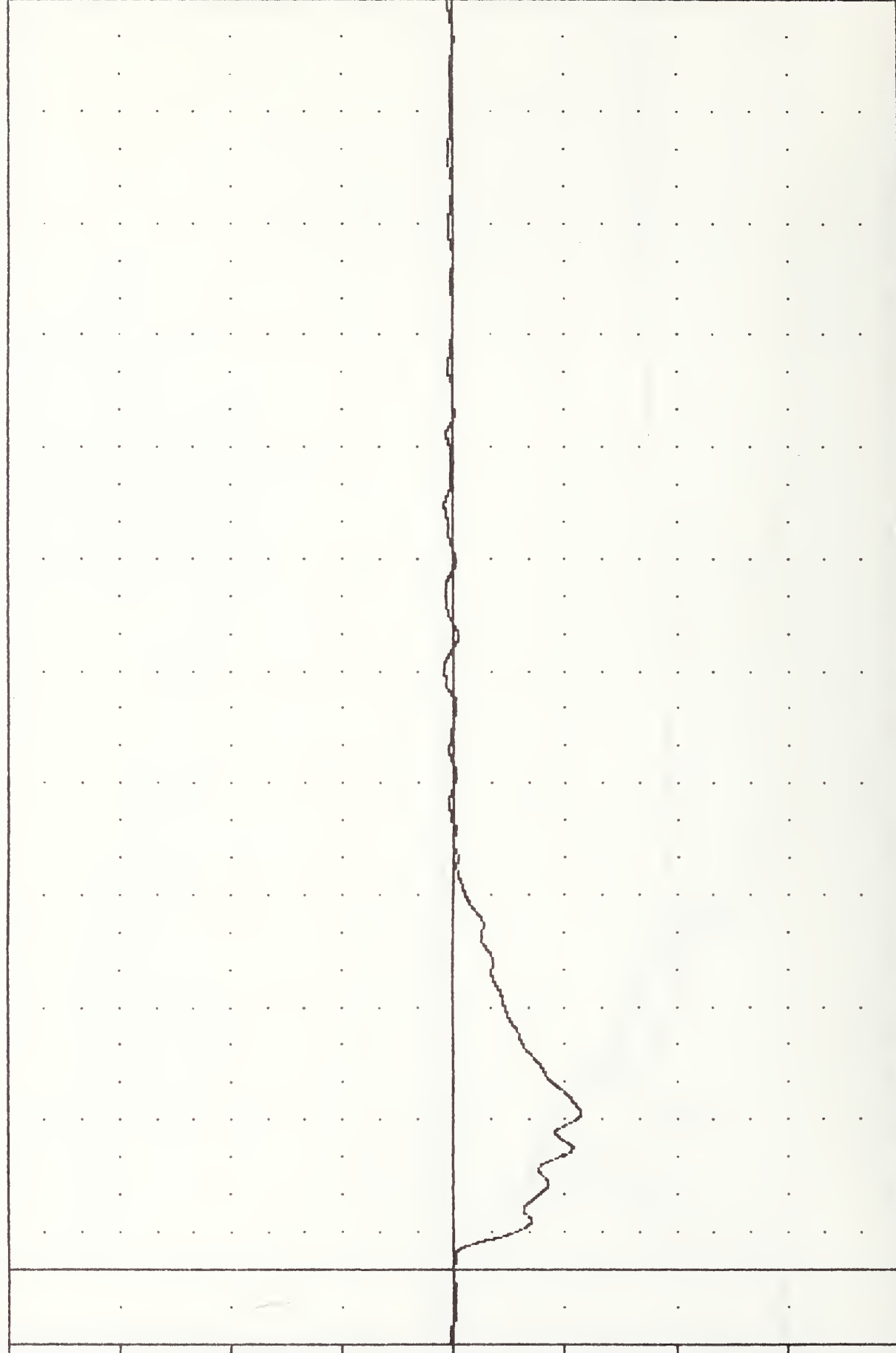
BCGXG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -17.15e 41.63 ,

1.34 s 161.00

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER CENTER OF GRAVITY X-AXIS ACCELERATION

VRTC 910627

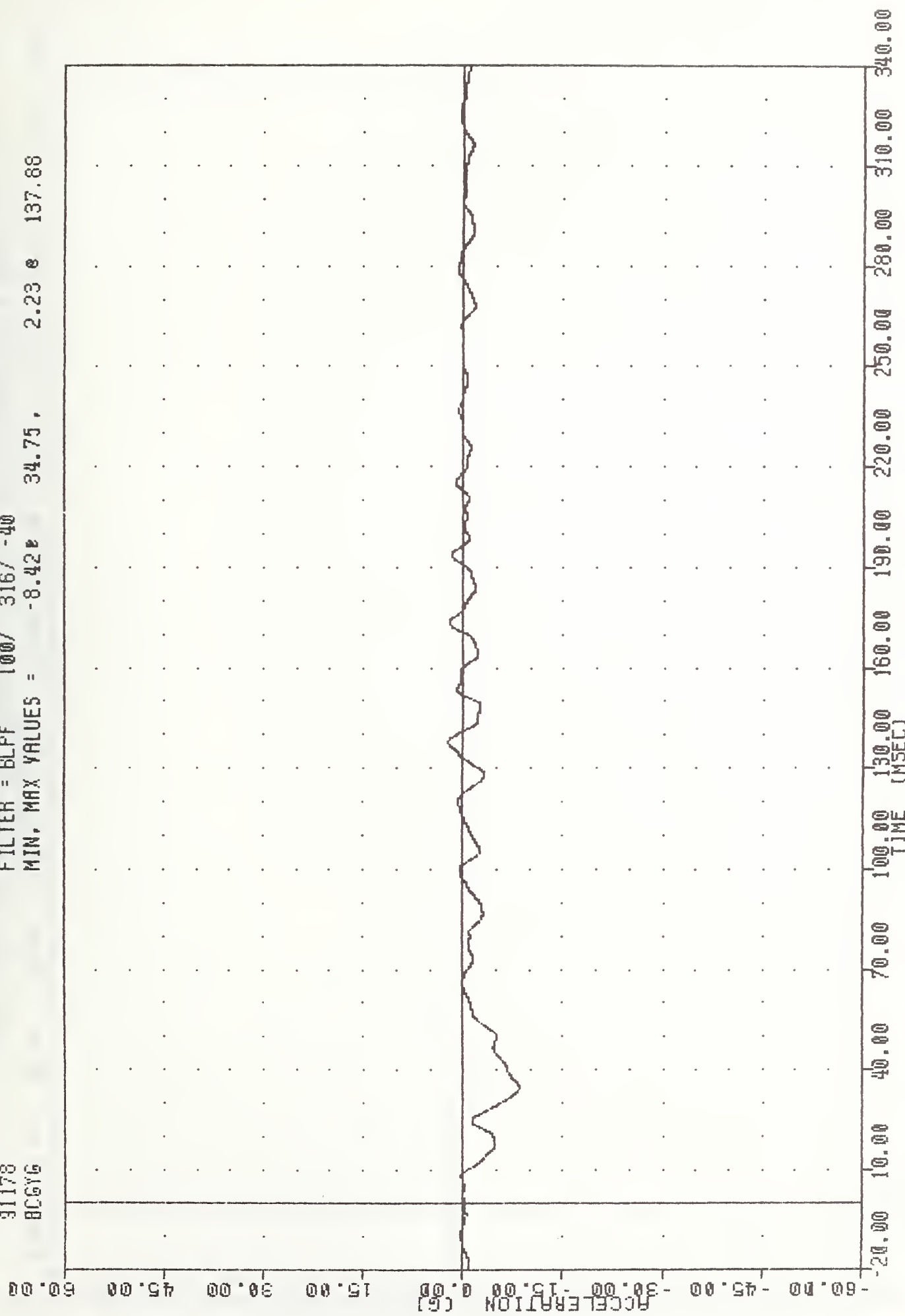
LEFT SIDE IMPACT

91178

BCGYG

FILTER = BLPF 100/ 316/ -40

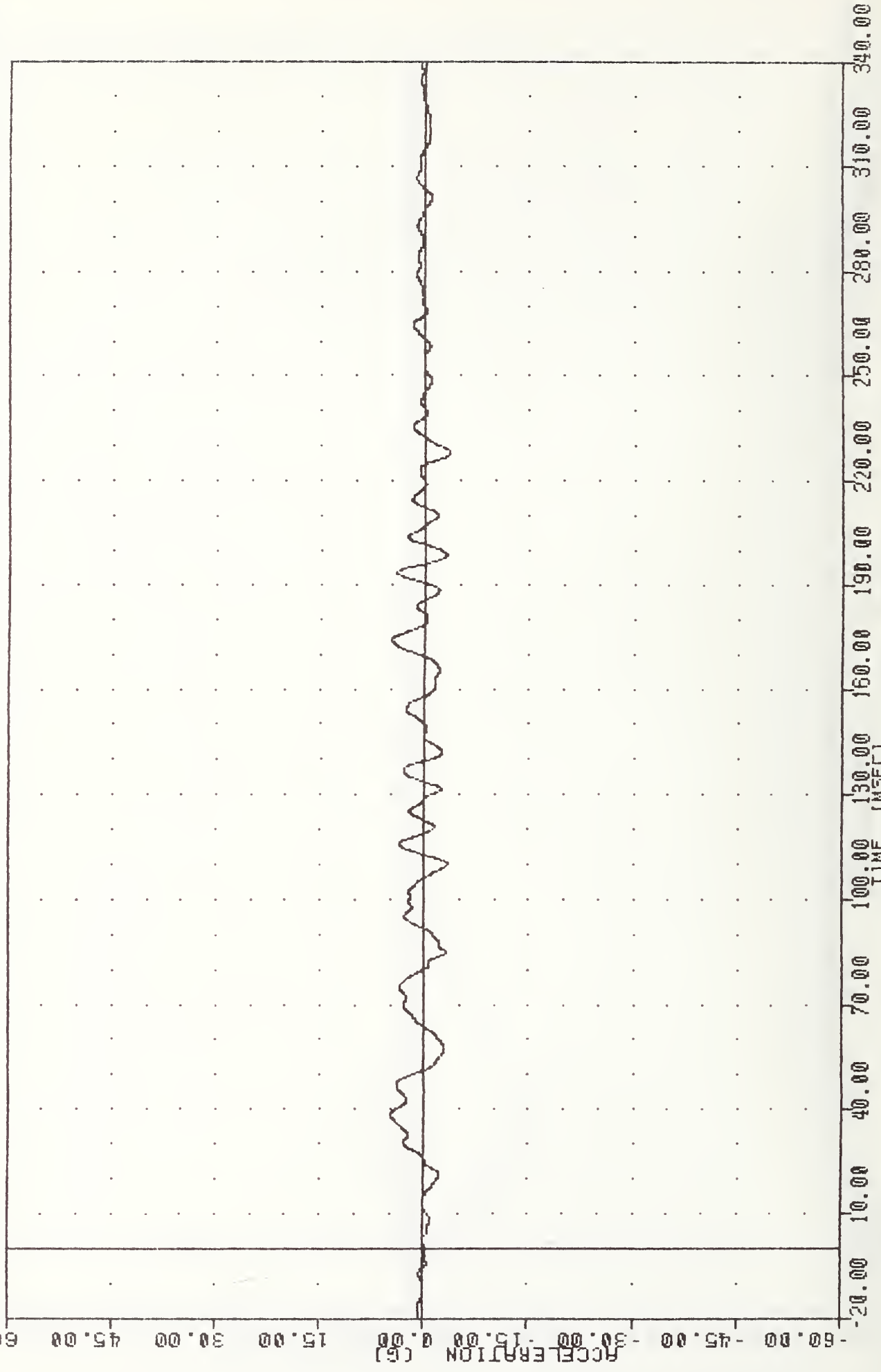
MIN. MAX VALUES = -8.42 34.75 2.23 137.68



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER CENTER OF GRAVITY Y-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
BC6ZG

FILTER = BLPF 100/ 316/ -40
MIN. MAX VALUES = -3.54e 228.00 , 4.89 e 174.00



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER CENTER OF GRAVITY Z-AXIS ACCELERATION

VRTC , 910627

LEFT SIDE IMPACT

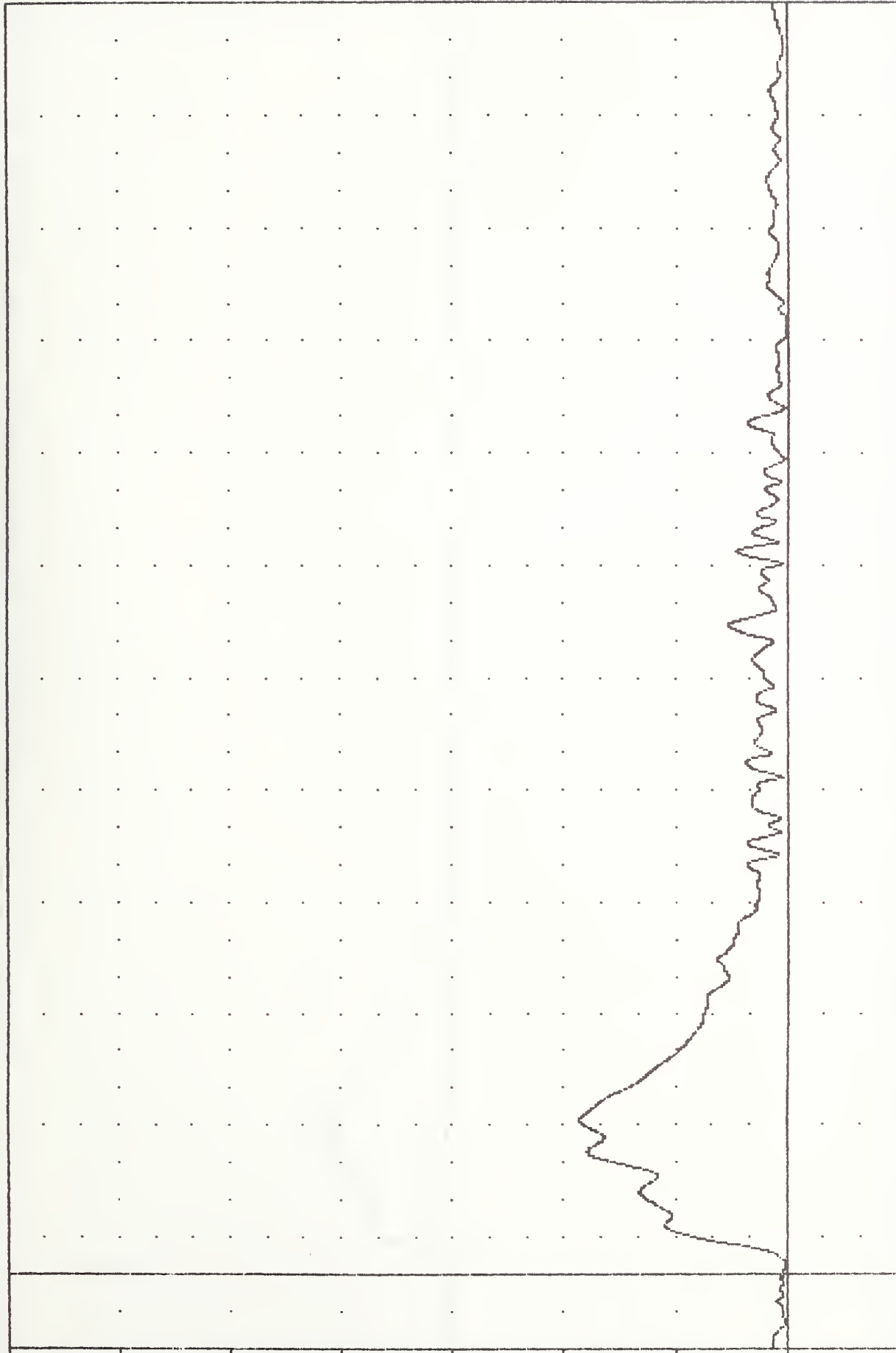
91178

BCGRG

FILTER = BLPF 100/ 316/ -40

MIN, MAX VALUES = 0.098 256.25, 18.54 @ 41.13

ACCELERATION (G)



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER CENTER OF GRAVITY RESULTANT ACCELERATION

VRTC 910827

LEFT SIDE IMPACT

91178

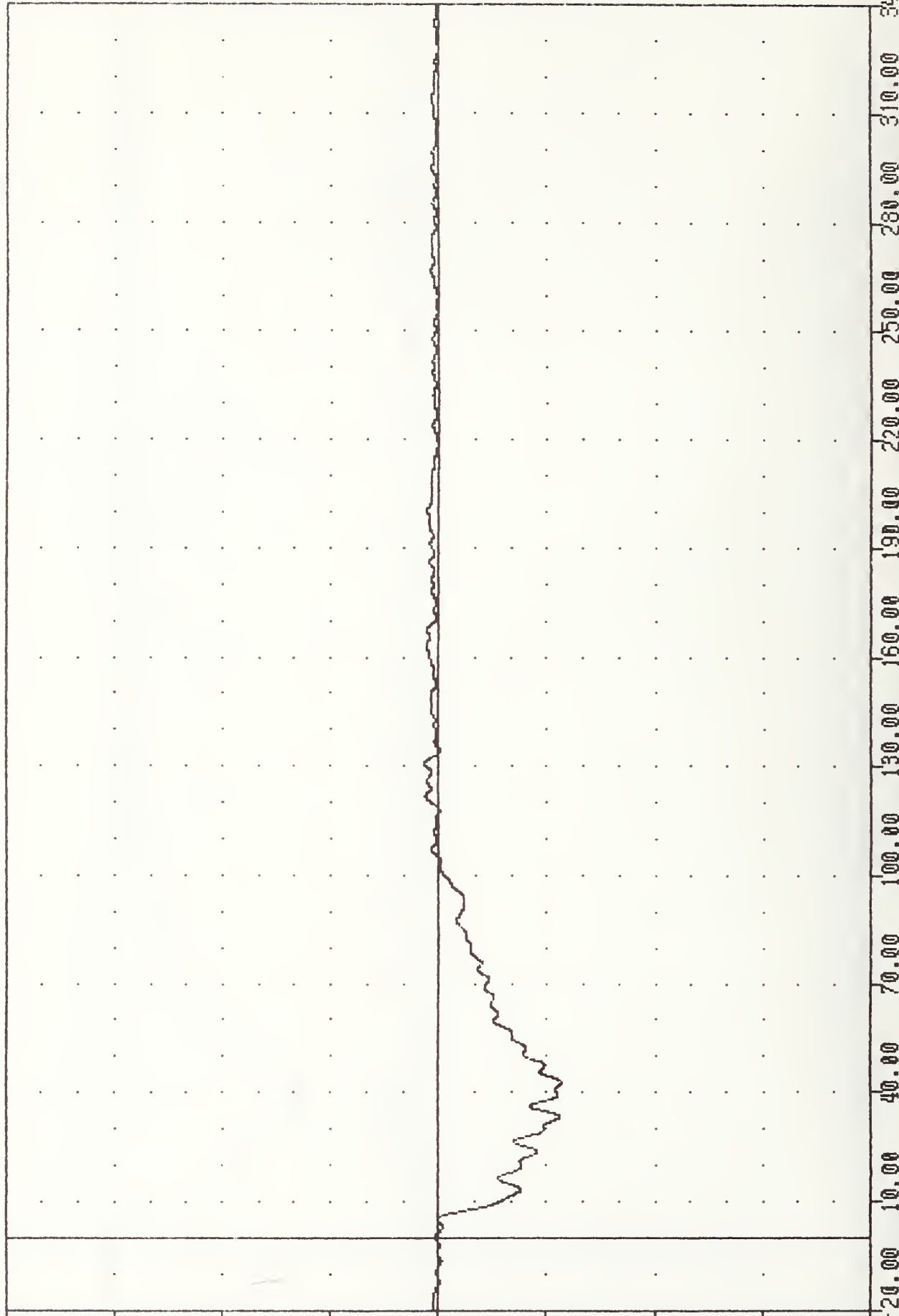
BRCXG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -17.04 42.63

1.98 130.75

ACCELERATION (G)



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER REAR CROSSMEMBER X-AXIS ACCELERATION

VRAC , 910627

LEFT SIDE IMPACT

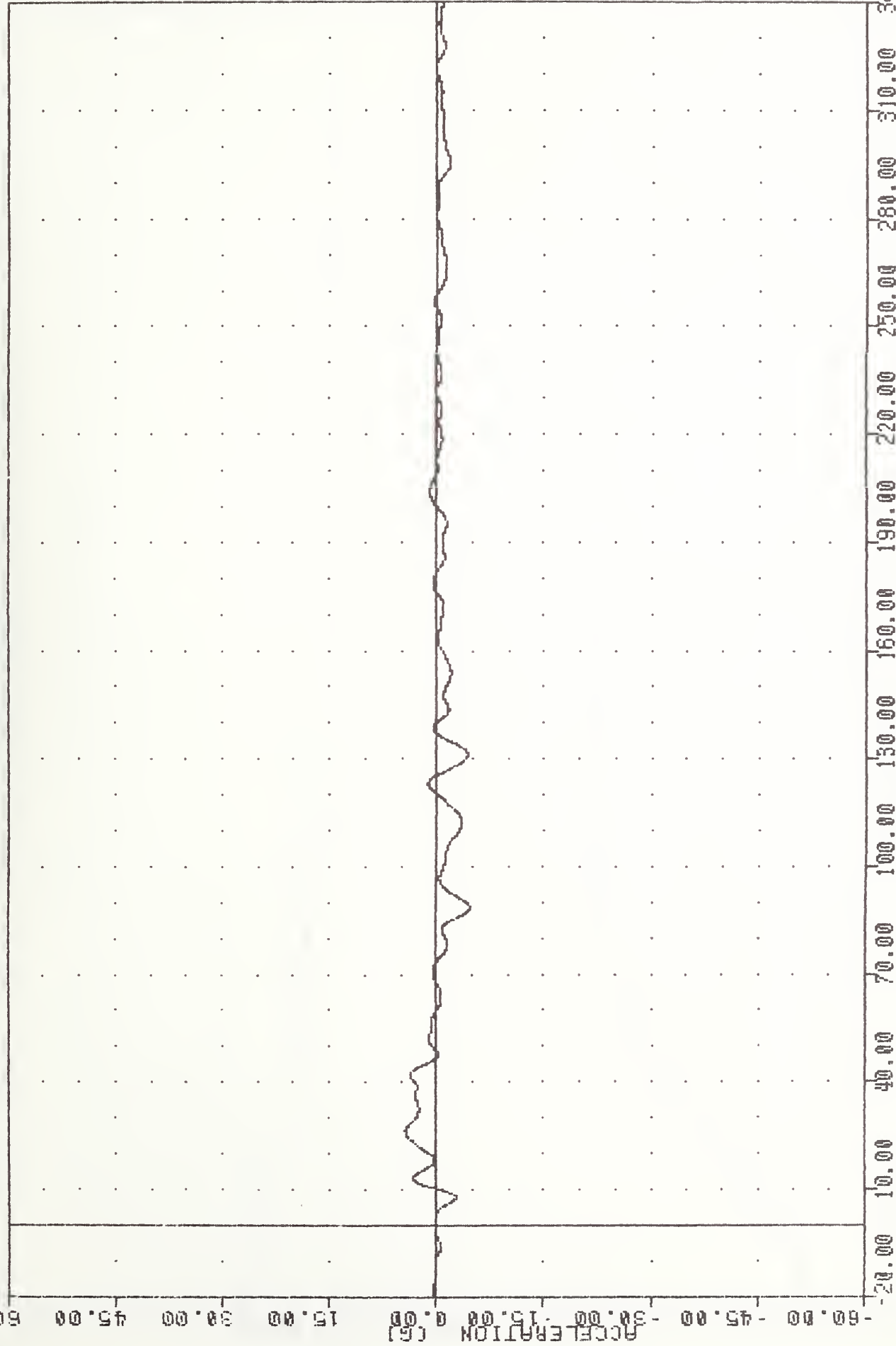
91178

BRCYG

FILTER = BLPF 100/ 316/ -40

MIN. MAX VALUES = -4.60 88.50 ,

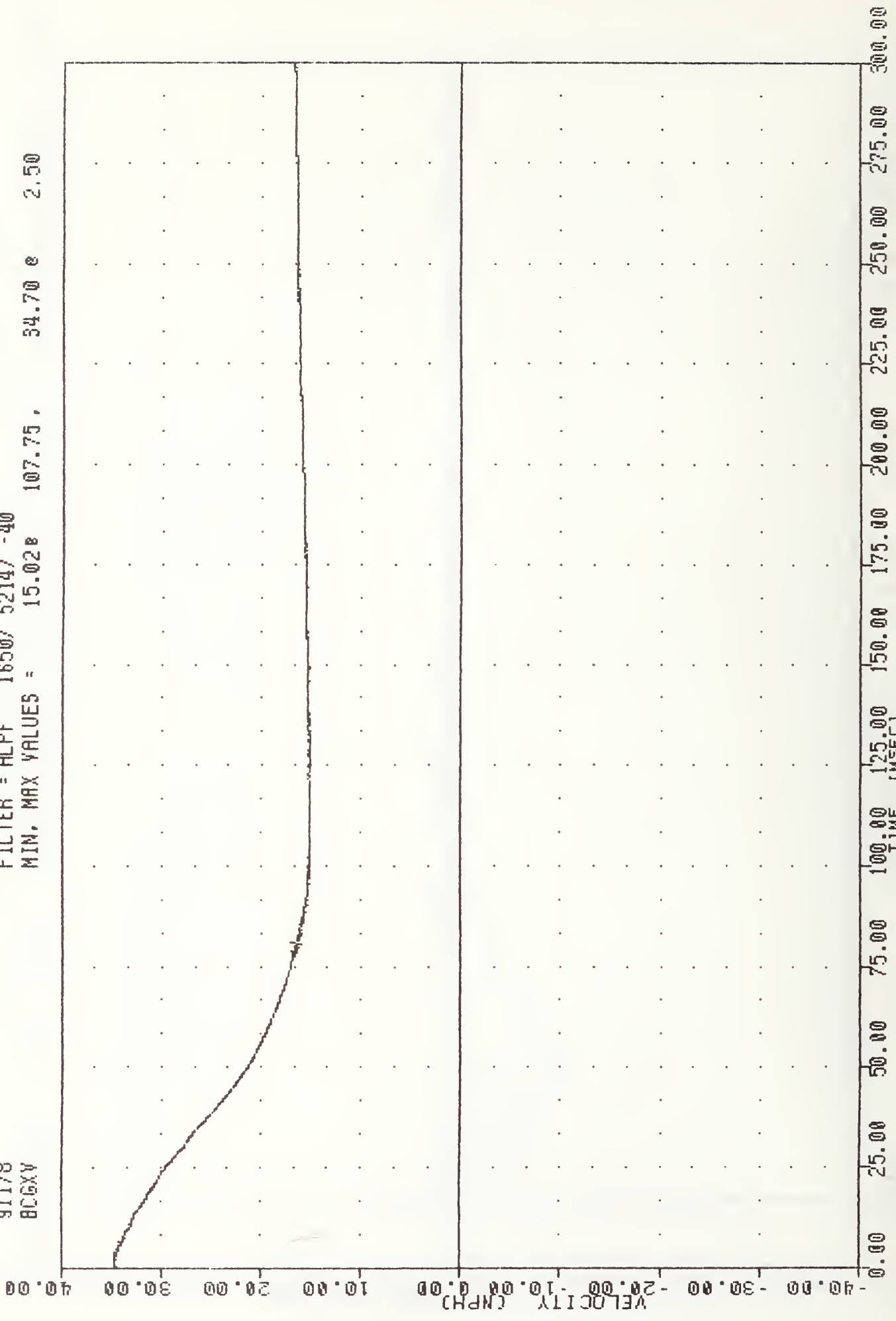
4.38 26.25



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER REAR CROSSMEMBER Y-AXIS ACCELERATION

VRTC , 910627
LEFT SIDE IMPACT
91178
BCGXV

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 15.02e 107.75 , 34.70 e 2.50



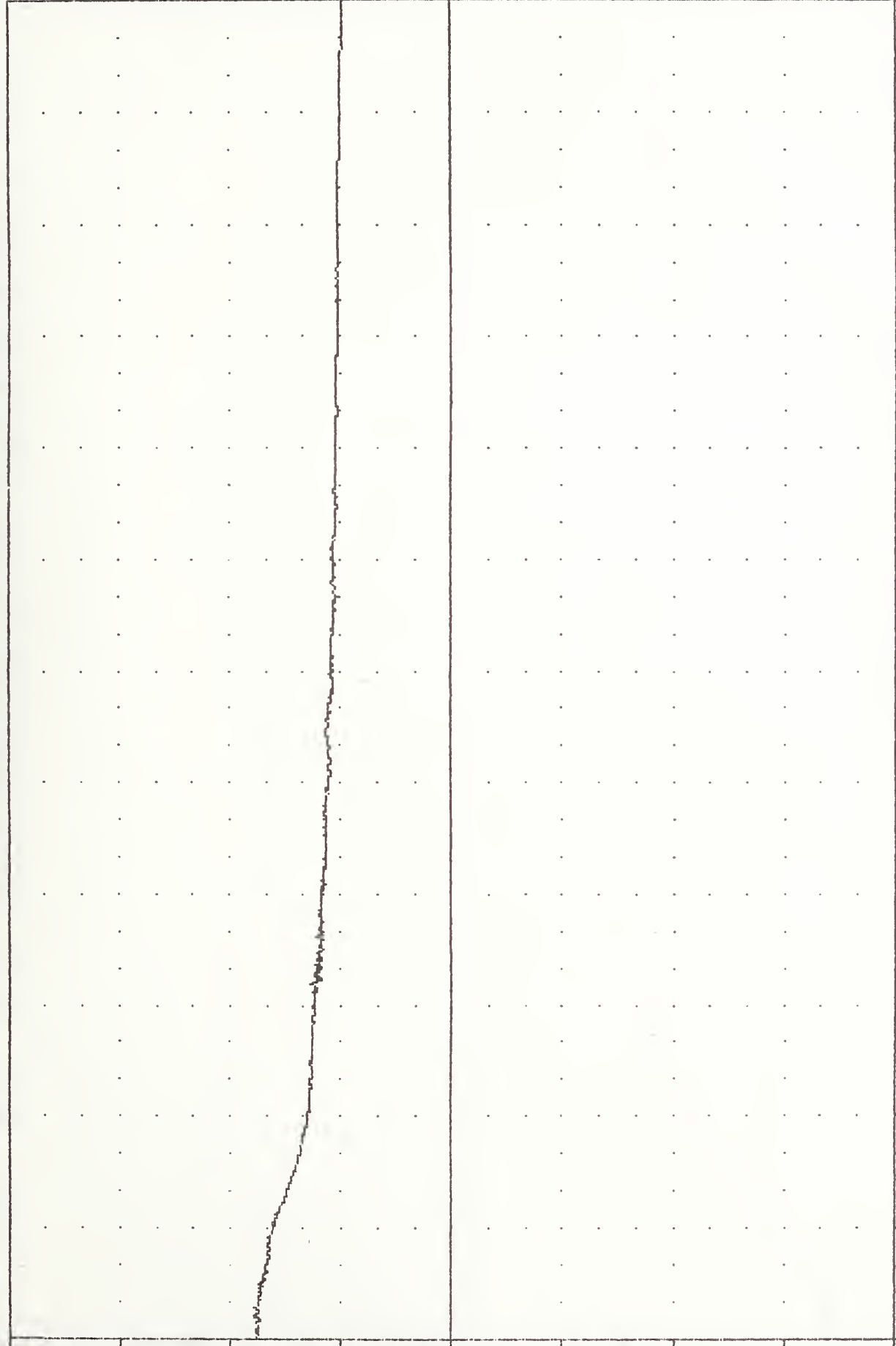
MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER CENTER OF GRAVITY X-AXIS VELOCITY

VRIC , 910627
LEFT SIDE IMPACT

91178
BCGV

FILTER = ALPF 1650/ 5214/ -40
MIN. MAX VALUES = 9.78 300.00 , 17.85 5.00

VELOCITY (MPH)



0.00 25.00 50.00 75.00 100.00 125.00 150.00 175.00 200.00 225.00 250.00 275.00 300.00

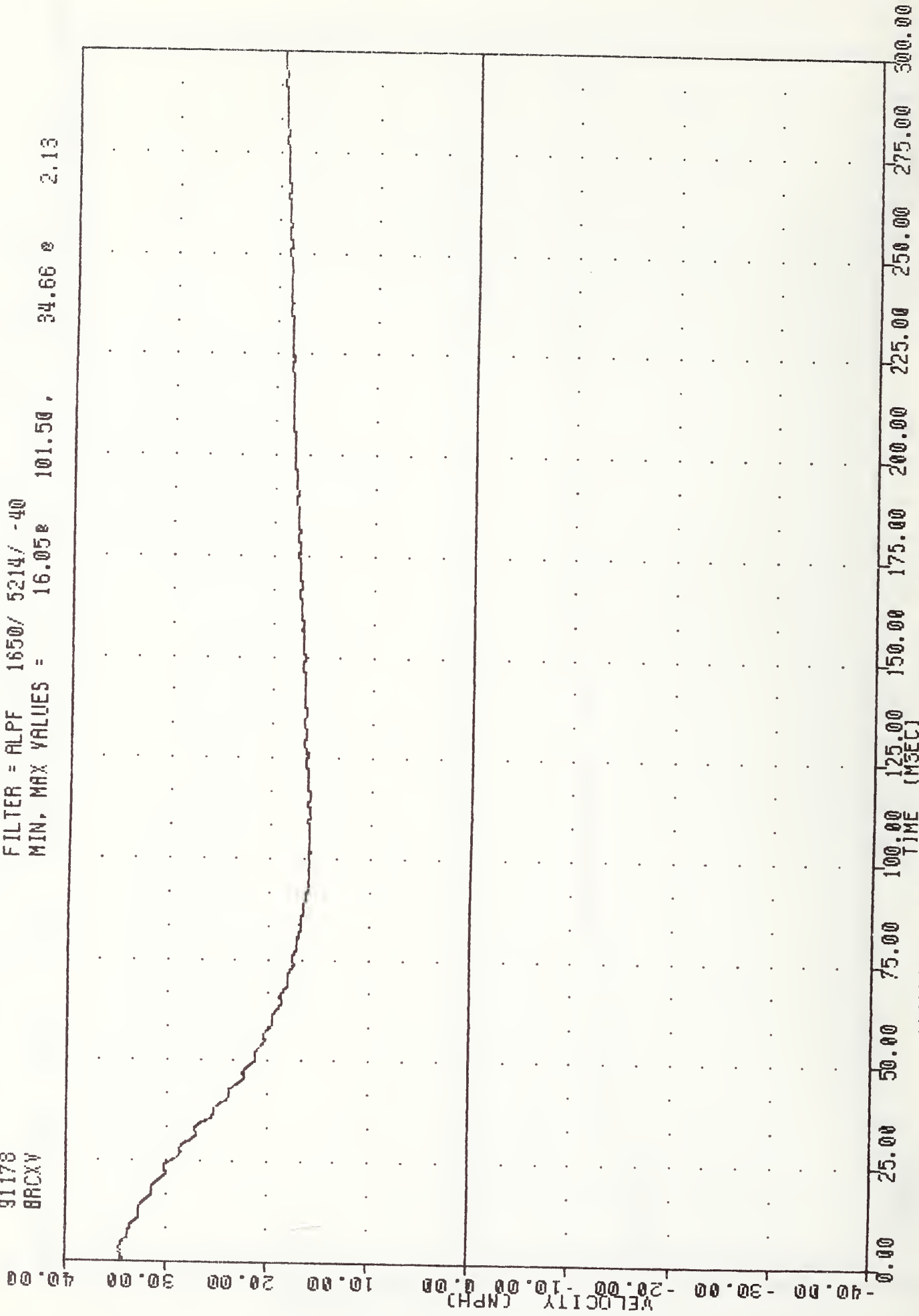
TIME (msec)

MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER CENTER OF GRAVITY Y-AXIS VELOCITY

VRTC , 910627
LEFT SIDE IMPACT

91178
BRCXW

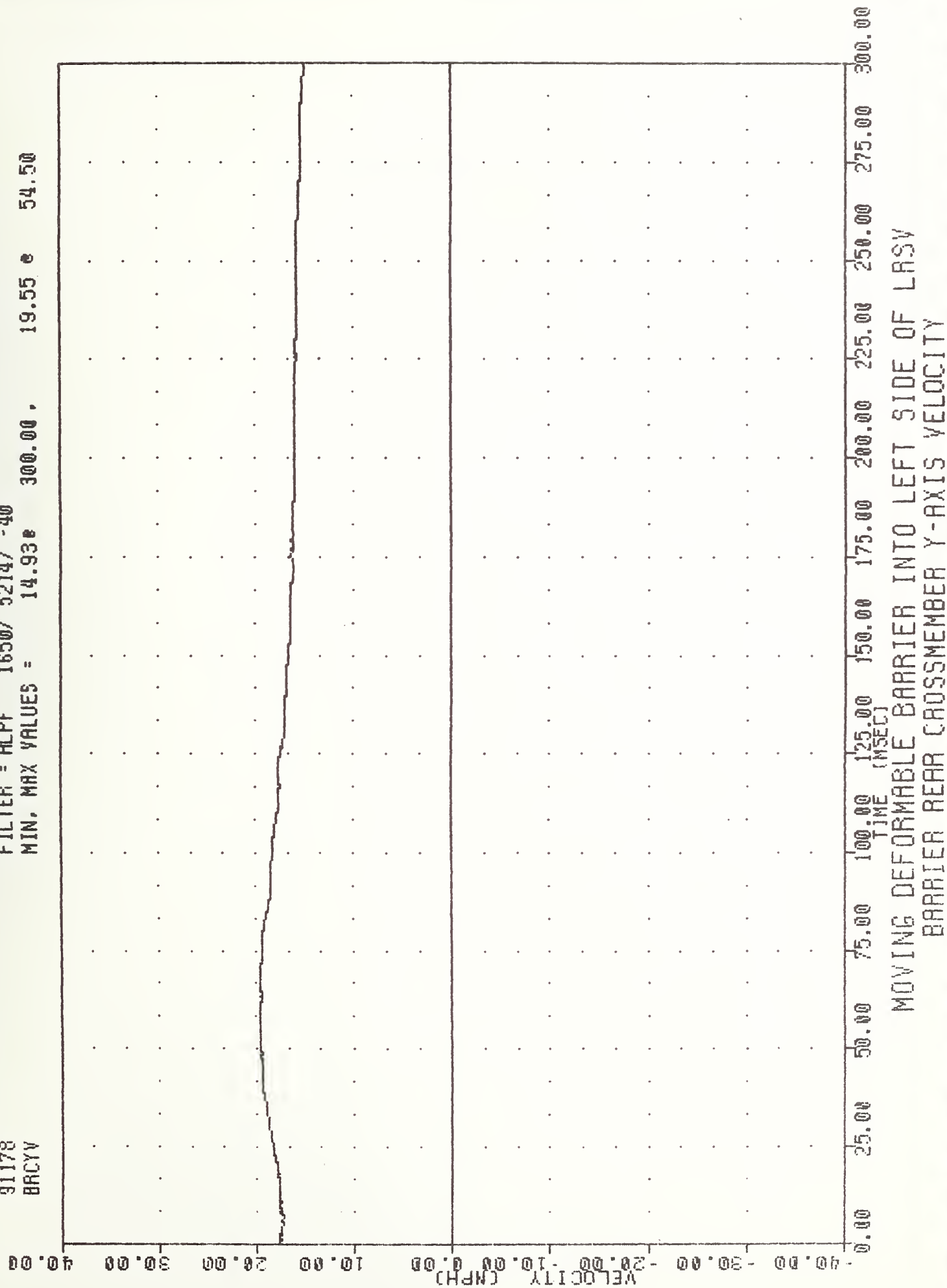
FILTER = ALPF 1650/ 5214/ -40
MIN, MAX VALUES = 16.05e 101.50, 34.66 e 2.13



MOVING DEFORMABLE BARRIER INTO LEFT SIDE OF LRSV
BARRIER REAR CROSSMEMBER X-AXIS VELOCITY

WRTC , 910627
 LEFT SIDE IMPACT
 91178
 BRGYV

FILTER = ALPF 1650/ 5214/ -40
 MIN, MAX VALUES = 14.93e 300.00 , 19.55 e 54.50



APPENDIX C

MISCELLANEOUS INFORMATION

DUMMY INSTRUMENTATION PLACEMENT
DUMMY MANUFACTURER & S/N: HUMANETICS 002
SEATING POSITION: DRIVER

MNEMONIC	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+SENSING)
HEDXG1	HEAD	X	ENDEVCO	7264	FC01J	FRONT
HEDYG1	HEAD	Y	ENDEVCO	7264	FG28J	LEFT
HEDZG1	HEAD	Z	ENDEVCO	7264	DF48J	UP
SHLYG1	LEFT SHOULDER	Y	ENDEVCO	7264	FG31J	UP
SHLYD1	LEFT SHOULDER					
	DISPLACEMENT	Y	SPACE AGE CONTROLS	160321-H	62	
T01XG1	UPPER SPINE	X	ENDEVCO	7264	DC54J	REAR
T01YG1	UPPER SPINE	Y	ENDEVCO	7264	DC18J	LEFT
T01YGA	UPPER SPINE	Y	ENDEVCO	7264	FJ92J	RIGHT
T01ZG1	UPPER SPINE	Z	ENDEVCO	7264	FC43J	UP
T12XG1	LOWER SPINE	X	ENDEVCO	7264	FH37J	FRONT
T12YG1	LOWER SPINE	Y	ENDEVCO	7264	FF73J	LEFT
T12YGA	LOWER SPINE	Y	ENDEVCO	7264	FG43J	LEFT
T12ZG1	LOWER SPINE	Z	ENDEVCO	7264	DC20J	UP
LURYG1	LEFT UPPER RIB	Y	ENDEVCO	7264	DC68J	RIGHT
LURYGA	LEFT UPPER RIB	Y	ENDEVCO	7264	DE99J	RIGHT
LURYD1	LEFT UPPER RIB					
	DISPLACEMENT	Y	SPACE AGE CONTROLS	160321-H	28	
LCRYG1	LEFT CENTER RIB	Y	ENDEVCO	7264	FF79J	RIGHT
LCRYGA	LEFT CENTER RIB	Y	ENDEVCO	7264	FC60J	RIGHT
LCRYD1	LEFT CENTER RIB					
	DISPLACEMENT	Y	SPACE AGE CONTROLS	160321-H	45	
LLRYG1	LEFT LOWER RIB	Y	ENDEVCO	7264	FG33J	RIGHT
LLRYGA	LEFT LOWER RIB	Y	ENDEVCO	7264	DC72J	RIGHT
LLRYD1	LEFT LOWER RIB					
	DISPLACEMENT	Y	SPACE AGE CONTROLS	160321-H	54	
LUAYG1	LEFT UPPER					
	ABDOMEN	Y	ENDEVCO	7264	ET91J	RIGHT
LUAYD1	LEFT UPPER ABDOMEN					
	DISPLACEMENT	Y	SPACE AGE CONTROLS	160321-H	60	

DUMMY INSTRUMENTATION PLACEMENT CONTINUED
DUMMY MANUFACTURER & S/N: HUMANETICS 002
SEATING POSITION: DRIVER

MNEMONIC	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+SENSING)
LLAYG1	LEFT LOWER					
	ABDOMEN	Y	ENDEVCO	7264	FB67J	RIGHT
LLAYD1	LEFT LOWER ABDOMEN					
	DISPLACEMENT	Y	SPACE AGE CONTROLS	160321-H	109	
PEVXG1	PELVIS	X	ENDEVCO	7264	EW44J	FRONT
PEVYG1	PELVIS	Y	ENDEVCO	7264	FJ66J	RIGHT
PEVZG1	PELVIS	Z	ENDEVCO	7264	FG97J	UP

DUMMY INSTRUMENTATION PLACEMENT

DUMMY MANUFACTURER & S/N: VRTC 905

SEATING POSITION: LEFT REAR PASSENGER

MNEMONIC	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+SENSING)
HEDXG4	HEAD	X	ENDEVCO	7264	BP55J	REAR
HEDYG4	HEAD	Y	ENDEVCO	7264	BE62J	LEFT
HEDZG4	HEAD	Z	ENDEVCO	7264	BD91J	UP
T01XG4	UPPER SPINE	X	ENDEVCO	7264	B098J	REAR
T01YG4	UPPER SPINE	Y	ENDEVCO	7264	DG87J	LEFT
T01ZG4	UPPER SPINE	Z	ENDEVCO	7264	EK16J	UP
T12XG4	LOWER SPINE	X	ENDEVCO	7264	EC41J	FRONT
T12YG4	LOWER SPINE	Y	ENDEVCO	7264	EH88J	LEFT
T12YGD	LOWER SPINE	Y	ENDEVCO	7264	EJ59J	LEFT
T12ZG4	LOWER SPINE	Z	ENDEVCO	7264	DE15J	UP
LURYG4	LEFT UPPER RIB	Y	ENDEVCO	7264	EJ62J	RIGHT
LURYGD	LEFT UPPER RIB	Y	ENDEVCO	7264	CA49H	RIGHT
LLRYG4	LEFT LOWER RIB	Y	ENDEVCO	7264	EJ97J	RIGHT
LLRYGD	LEFT LOWER RIB	Y	ENDEVCO	7264	BE69J	RIGHT
CSTYD4	CHEST					
	DISPLACEMENT	Y	BOURNS	5185	0483-280	
PEVXG4	PELVIS	X	ENDEVCO	7264	BH95J	REAR
PEVYG4	PELVIS	Y	ENDEVCO	7264	BD53J	LEFT
PEVZG4	PELVIS	Z	ENDEVCO	7264	BF11J	UP

VEHICLE INSTRUMENTATION PLACEMENT

MNEMONIC	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+SENSING)
RFSXG	RIGHT FRONT SILL	X	ENDEVCO	2264	AR38	FRONT
RFSYG	RIGHT FRONT SILL	Y	ENDEVCO	2264	AN45	LEFT
RFSZG	RIGHT FRONT SILL	Z	ENDEVCO	2264	AK21	UP
RRSXG	RIGHT REAR SILL	X	ENDEVCO	2264	BB60	REAR
RRSYG	RIGHT REAR SILL	Y	ENDEVCO	2264	AS06	LEFT
RRSZG	RIGHT REAR SILL	Z	ENDEVCO	2264	AS76	DOWN
RDKXG	REAR DECK	X	ENDEVCO	2264	AV27	REAR
RDKYG	REAR DECK	Y	ENDEVCO	2264	BA68	LEFT
RDKZG	REAR DECK	Z	ENDEVCO	2264	AZ88	UP

VEHICLE INSTRUMENTATION PLACEMENT

MNEMONIC	LOCATION	AXIS	MFR	MODEL	S/N	ORIENTATION (+SENSING)
BCGXG	CENTER OF GRAVITY	X	ENDEVCO	2264	AS03	FRONT
BCGYG	CENTER OF GRAVITY	Y	ENDEVCO	2264	AS71	LEFT
BCGZG	CENTER OF GRAVITY	Z	ENDEVCO	2264	AR49	UP
BRCXG	REAR CROSSMEMBER	X	ENDEVCO	2264	AY13	REAR
BRCYG	REAR CROSSMEMBER	Y	ENDEVCO	2264	AS95	RIGHT



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Sankey, J.

Evaluation
dummy

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